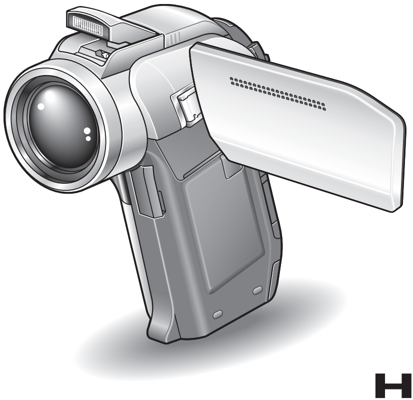
SANYO

INSTRUCTION MANUAL

VPC-HD2000EX
VPC-HD2000
VPC-HD2000GX

Dual Camera

Xacti HD HIGH DEFINITION



SD HC

HDMI HIGH-DEFINITION MULTIMEDIA INTERFACE

Important note

This manual explains how to safely operate the VPC-HD2000EX, VPC-HD2000 and VPC-HD2000GX.
Any information regarding only one of these products will be labeled as such.

Please read these instructions carefully before using the camera.
Make sure to read and understand the separate booklet “SAFETY MANUAL”.
Keep this manual in a safe place for later reference.

Warning
TO PREVENT THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

FOR AMERICAN USERS

The following advisory is included in accordance with the laws of the State of California (USA):

WARNING:
This product contains chemicals, including lead, known to the State of California to cause cancer, birth defects or other reproductive harm. **Wash hands after handling.**

- This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
  - Reorient or relocate the receiving antenna.
  - Increase the separation between the equipment and receiver.
  - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
  - Consult the dealer or an experienced radio/TV technician for help.
- Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Declaration of Conformity

Model number: VPC-HD2000
Trade Name: SANYO
Responsible party: SANYO FISHER COMPANY
Address: 21605 Plummer Street, Chatsworth, California 91311
Telephone No.: (818) 998-7322
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

FOR CANADIAN USERS

- This Class B digital apparatus complies with Canadian ICES-003.

FOR EU USERS

The symbol mark and recycling systems described below apply to EU countries and do not apply to countries in other areas of the world.
Your SANYO product is designed and manufactured with high quality materials and components which can be recycled and/or reused.
The symbol mark means that electrical and electronic equipment, batteries and accumulators, at their end-of-life, should be disposed of separately from your household waste.

Note:
If a chemical symbol is printed beneath the symbol mark, this chemical symbol means that the battery or accumulator contains a heavy metal at a certain concentration. This will be indicated as follows: Hg: mercury, Cd: cadmium, Pb: lead
In the European Union there are separate collection systems for used electrical and electronic equipment, batteries and accumulators.
Please, dispose of them correctly at your local community waste collection/recycling centre.
Please, help us to conserve the environment we live in!



SANYO FISHER Sales (Europe) GmbH
Stahlgruberring 4, D-81829 München, Germany

SANYO Electric Co., Ltd.
1-1, Sanyo-cho, Daito City, Osaka 574-8534, Japan

FOR RUSSIAN USERS

This product is certified by an official certification company which is authorized by the Russian Federation.

AЯ46

HOW TO READ THIS MANUAL

For first-time users

Please read the sections on “SETUP” and “SIMPLE” in this manual, as well as the included “QUICK GUIDE” to familiarize yourself with your camera’s operation.

↓

To use the various camera features

Please read the sections on “NORMAL” and “OPTION SETTINGS” in this manual. To view on a TV, please read the section on “OTHER DEVICES AND CONNECTIONS” in this manual. To connect to a computer, please see the “Xacti Software CD INSTRUCTION MANUAL”.

↓

To use additional features

To use a computer to edit the recorded data or to save data to a DVD, please read the “Xacti Software CD INSTRUCTION MANUAL”.

You may find the answers to questions or problems concerning camera operation in the sections “COMMONLY ASKED QUESTIONS” (page 168) and “TROUBLESHOOTING” (page 176).

Symbols used in this manual

HINT Points giving some extended instructions or special points to pay attention to.

CAUTION Points that require special attention.

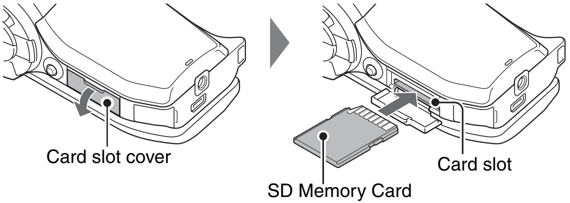
(page xx) Refer to the page indicated for detailed information.

SHOOT, PLAY BACK AND SAVE

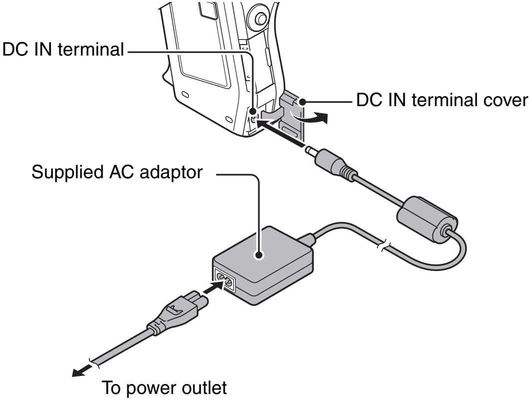
Preparing the camera

1 Insert the SD Memory Card.

- An SD Memory Card is not included with your camera. Please purchase a commercially sold card.
- In this manual, the SD Memory Card is referred to as the “card”.



2 Connect the AC adaptor to the camera.



SHOOT, PLAY BACK AND SAVE

Shooting

1 Set the REC/PLAY switch to REC.

2 Press the ON/OFF button for at least 1 second to turn the camera on.

- If the screen to set the date and time appears, press the MENU button 2 times to cancel it.
  For how to set the date and time, see page 43.

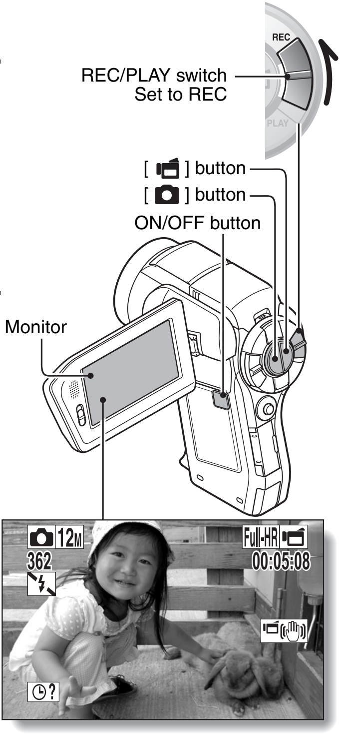
3 Record.

To record a video clip:

- Press the [ ] button to begin recording a video clip.
- Press the [ ] button again to end the recording.

To take a photo:

- Press the [ ] button.
- A still image is captured.



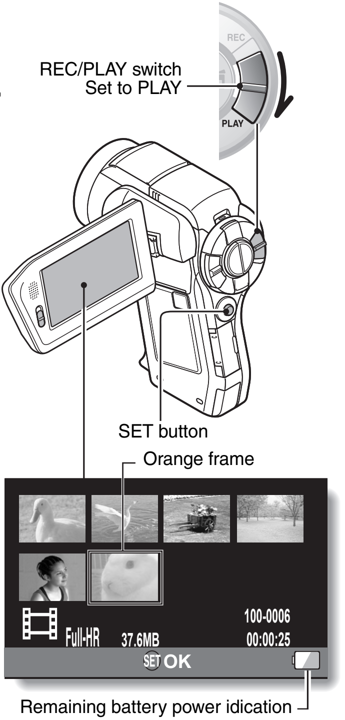
Before capturing those important shots, be sure to first take a test shot to confirm that your camera is set up and ready to go

- Sanyo declines any claim for compensation for recorded contents etc. in case of photographing or recording failure due to a chance camera or card flaw.

Playback

1 Set the REC/PLAY switch to PLAY.
- The display changes to the Playback Screen.

2 Select the image to play back.
- Toggle the SET button left, right, up or down to move the orange frame to the image you wish to play back.
- The image information for the framed image is shown at the bottom of the screen.



3 **Press the SET button.**
- Playback begins.

<To return to the recording mode>
- Set the REC/PLAY switch to REC.

When you are finished using the camera...

Press the ON/OFF button for at least 1 second to turn the camera off.

To continue to the next operation...

Please confirm that your computer is connected to the Internet.

Burn your recorded video clips onto a DVD (Windows Vista)

Using the supplied CD-ROM (Xacti Software CD), you can store your captured images on a DVD. Detailed information about the Xacti Software CD can be found on page 4 in the Xacti Software CD INSTRUCTION MANUAL.

Install application programs

1 Set the supplied CD-ROM in your computer's DVD drive.
- The installation window opens.

2 Click on [Nero 8 Essentials].
- After clicking on an application program, follow the instructions shown on the monitor to install the program.
- Nero 8 Essentials works with both Windows XP and Windows Vista. For detailed information concerning the operating environment, please see page 5 in the Xacti Software CD INSTRUCTION MANUAL.

3 In the installation window, click on [Finish] and remove the CD-ROM from the computer's DVD drive.

<Using Blu-ray Disks/AVCHD>
- The supplied Nero 8 Essentials cannot be used to record Blu-ray Disks or AVCHD.
- To record Blu-ray Disks or AVCHD, please upgrade the Nero 8 Essentials software (a paid-for service).
- Note that your computer must be connected to the Internet in order to complete this procedure.
- Please see the Sanyo support page (page 16 in the Xacti Software CD INSTRUCTION MANUAL) or visit the following website for more information.
  http://www.sanyo-dsc.com/

<About the Kodak online service>
- When the installation window closes, a dialog box to connect to the website introducing Kodak's online service appears. Check the [No thanks!] option button, and then click on the [OK] button.

SHOOT, PLAY BACK AND SAVE

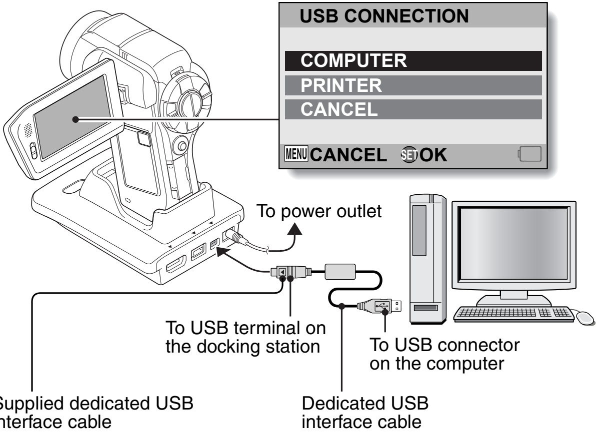
Connect your camera to a computer

Connect your camera to a computer, and copy the desired files to the computer.

1 **Use the supplied dedicated USB interface cable to connect your camera to the computer.**

2 **Turn on the camera.**

- The USB Connection Screen appears on the camera's monitor.



- Insert the plug with the [▲] mark facing up.

3 Select “COMPUTER”, and press the SET button.

- The screen to select the computer connection mode appears.

4 Select “CARD READER”, and press the SET button.

- The message [Found New Hardware] appears in the task tray, showing that the camera is recognized as a drive.
- The card is recognized (mounted) as a disk, and the [XACTI (E:)] icon appears in the [My Computer] window.
  - The drive name (E:) may be different on your computer.

5 Copy the files from the card to the computer’s hard disk.

- The data recorded with your camera are stored in the following folder. You can specify the folder on the hard disk to which to copy the files.
  XACTI (E:)\DCIM***SANYO
  (*** represents numbers [page 12 in the Xacti Software CD INSTRUCTION MANUAL]).
  - The drive name (E:) may be different on your computer.

HINT

- For information on how to copy all the camera’s still image and video clip files at once, please see the support pages at the website below:
  http://www.sanyo-dsc.com/

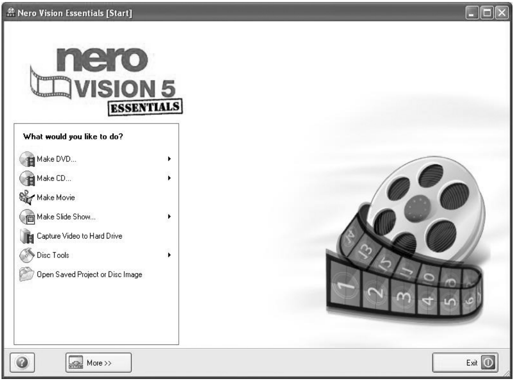
Burn video clips onto a DVD (For Windows Vista users)

Here's how to write your recorded data onto a DVD in the mpeg2 format. For information on other operations, please see the Help file for Nero Vision. To access the Nero Vision Help file, click the [?] button on the Nero Vision start screen.

1 **Insert a blank DVD in your computer's DVD drive.**

2 **Click the Start button, and point to [All Programs] → [Nero 8], and click on [Nero Vision Essentials].**

- Nero Vision starts up, and the start screen appears.



- The specifications for the Nero 8 Essentials edition that is included with your camera are different from those of the commercially sold edition.

3 **Under the “What would you like to do?” heading, point to [Make DVD] and click on [DVD-video].**

- The Hints window opens, in which you can find an explanation of each screen.

<To disable the Hints window >

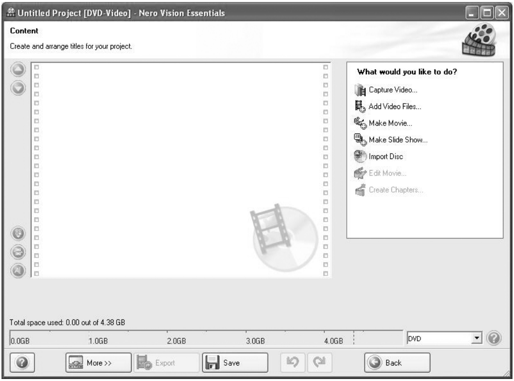
- From the [Show hints when moving to page] menu in the Hints window select [Disable].

4 **Click on “Third party patent activation” on the tool bar.**

- The screen to activate third party patent activation (the certification process that enables you to use the functions) via the Internet or FAX appears.
- The activation process is necessary in order to create and play back DVDs, as well as to import and export MPEG-2 type files.
- Once the third party patent activation is completed, it will not be requested again.
- The number of times for third party patent activation is limited. When this limitation has been exceeded (by multiple installations, for example), please follow the instructions on the screen to contact Nero support.

5 **Click the [Close] button.**
- The screen to make a DVD-video opens.

<To return to the preceding step>
- Click the [Back] button.



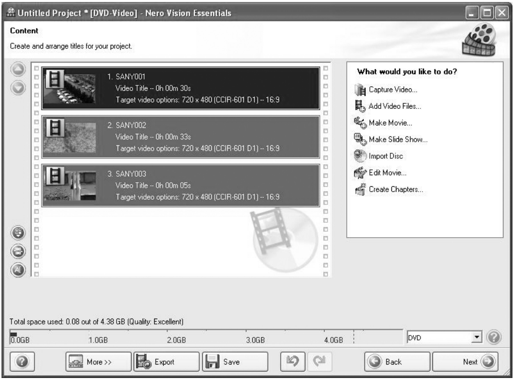
6 **Under the "What would you like to do?" heading, click [Add video files].**
- The window to select files to burn to DVD opens.

7 **Click on a file to burn to DVD.**

<To select multiple files>
- Click on the files while holding down the [Ctrl] key.

8 Click the [Open] button.

- The selected files are shown in the "Content" field.



<To check the contents of the selected files>

- When you double-click a file in the "Content" field, the window to play the file appears. Click the [Next] button when you want to return to the previous window.

<To deselect a file>

① Right-click on the file in the "Content" field that you wish to deselect.

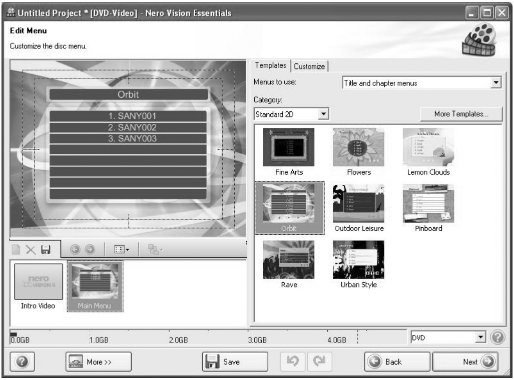
- A pulldown menu appears.

② Click [Remove].

- The selected file is removed from the "Content" field.

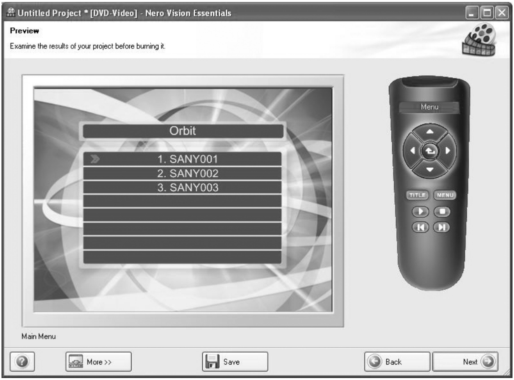
9 Click the [Next] button.

- The window to edit the disk menu appears.



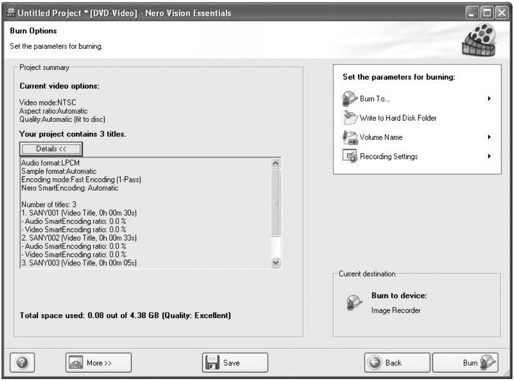
10 Click on one of the designs under “Templates”, and then click the [Next] button.

- A preview of the selected design is shown.



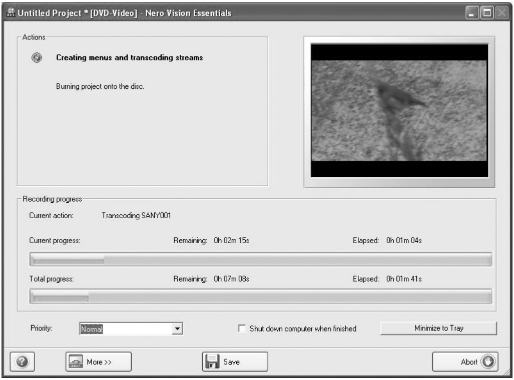
11 Click the [Next] button.

- The window to configure the DVD burn setup opens.



12 Click the [Burn] button.

• Disk writing begins.
• The process status is shown in the “Recording progress” field.



• When the burn process is completed, a screen asking if you would like to save a log file of the burn process appears.

13 Click the [Yes] button.

• Enter a name for the log file.

14 Click the [Save] button.

• A screen for you to indicate the next operation appears.

15 Click the [Finish] button.

- A screen asking if you would like to save the project appears.

16 Click the [Yes] button.

- Enter a name for the project file.

17 Click the [Save] button.

- Nero Vision Essentials ends.

CAUTION

- When burning full high-definition (HD) images to a DVD, it may take some time to convert the video format, depending on your computer’s capability.
- Commercialy sold DVD software cannot be played back.

How was that? The convenient accessories not only let you immediately view images captured with the camera, but you can also upload images to your computer and create your original DVDs. Read the following explanations to find out how you can fully enjoy your camera's digital video feature.



CONTENTS

■ SETUP

■ SIMPLE

SHOOTING

PLAYBACK

CONTENTS

■ NORMAL

SHOOTING

PLAYBACK

■ OPTION SETTINGS

■ OTHER DEVICES AND CONNECTIONS

CONNECTING TO A TV

CONNECTING TO A PRINTER

OTHER CONNECTIONS

CONTENTS

■ APPENDICES

QUICK SEARCH BY OPERATION

Your camera has an abundance of convenient features and functions. From creating precisely the photo you want, to viewing images using various techniques, you can locate the exact operation for your purposes in the following table.

<table>
<tr><th colspan="3">Shooting/recording</th></tr>
<tr><th>Basic operation</th><th>Convenient functions</th><th>Additional functions</th></tr>
<tr>
<td>Getting started shooting/recording
• “VIDEO CLIP RECORDING” on page 74
• “SHOOTING SINGLE SHOTS” on page 75
• “Sequential shots” on page 100
• “Audio recording” on page 97</td>
<td>Log the date and time of your photos
• “DATE AND TIME SETTING” on page 43
Zoom in on the subject
• “MACRO-PHOTOGRAPHY (ZOOM)” on page 81
Close-up photography
• “Focus range” (super macro mode) on pages 56 and 62
• “Select the focus setting” (super macro mode) on page 72</td>
<td>For more accurate focus
• “How to use the manual focus” (manual focus) on page 104
Set the focus to a narrow range
• “Focus mode setting” on page 105
Reduce noise when recording
• “NOISE REDUCTION setting” on page 138</td>
</tr>
<tr>
<td>Optimize the photo quality
• “Select the recording size” on pages 56 and 71.
• “Video setting” on pages 60 and 96
• “Still image setting” on pages 60 and 100</td>
<td colspan="2">Set the camera’s color/contrast characteristics
• “Image quality setting” on page 138</td>
</tr>
<tr>
<td colspan="3">Capture fast-moving subjects
• “Scene select setting” (sports mode) on pages 60 and 101
Suppress camera shake effect
• “Video stabilizer” and “Photo stabilizer” on page 62
• “Motion compensation (image stabilizer) setting” on page 103</td>
</tr>
</table>

QUICK SEARCH BY OPERATION

<table>
<tr><th colspan="3">Shooting/recording</th></tr>
<tr><th>Basic operation</th><th>Convenient functions</th><th>Additional functions</th></tr>
<tr><td colspan="3">Shoot in dark conditions
• “Exposure compensation” on page 112
• “Using the flash” on pages 60 and 77
• “Scene select setting” (night view portrait mode/fireworks mode/lamp mode) on pages 60 and 101</td></tr>
<tr><td></td><td colspan="2">Increase the camera’s sensitivity
• “ISO sensitivity setting” on pages 62 and 106
• “High sensitivity mode setting” on pages 64 and 111</td></tr>
<tr><td colspan="3">Photographing people
• “Scene select setting” (portrait mode/night view portrait mode) on pages 60 and 101
• “Filter setting” (cosmetic filter) on pages 60 and 101
• “Using the flash” (red-eye reduction) on pages 60 and 77
Sharp face shots
• “Face chaser setting” on pages 64 and 109</td></tr>
<tr><td colspan="3">Simplified operation for shooting/playback
• “SIMPLE MODE/NORMAL MODE” on page 47</td></tr>
<tr><td colspan="3">Photographing landscapes
• “Scene select setting” (landscape mode) on pages 60 and 101</td></tr>
<tr><td colspan="3">Take a self-photo
• “Self-timer setting” on page 102</td></tr>
<tr><td rowspan="2"></td><td>Make images lighter or darker
• “Exposure compensation” on page 112
• “High sensitivity mode setting” pages 64 and 111</td><td>Measure the brightness of a specific area
• “Light-measuring mode setting” on pages 62 and 105
Adjust the camera’s sensitivity
• “ISO sensitivity setting” pages 62 and 106
For a more precise exposure setting
• “Exposure setting” (manual exposure control) on pages 64 and 108</td></tr>
<tr><td>Change the color of the images
• “Filter setting” (monochrome filter/sepia filter) on pages 60 and 101</td><td>Make white appear natural
• “White balance setting” on pages 64 and 107</td></tr>
</table>

<table>
<tr><th colspan="3">Playback</th></tr>
<tr><th>Basic operation</th><th>Convenient functions</th><th>Additional functions</th></tr>
<tr>
<td>Getting started viewing images
• “PLAYING BACK VIDEO CLIPS AND STILL IMAGES” on page 84</td>
<td>Adjust the speaker volume
• “PLAYBACK VOLUME” pages 58, 65 and 89
Search for image/audio files
• “21-image display playback” on page 93
• “Selecting the playback folder” on pages 66 and 94
Magnify an image
• “Magnifying (zooming in) the image” on page 95</td>
<td>Change the angle of view
• “Rotate” on pages 65 and 117
Reduce the photo size
• “Resize” on pages 65 and 117</td>
</tr>
<tr>
<td>• “Audio playback” on page 98</td>
<td colspan="2">Adjust the speaker volume
• “PLAYBACK VOLUME” on pages 58, 65 and 89</td>
</tr>
<tr><td colspan="3">Continuous playback
• “SLIDESHOW PLAYBACK” on pages 58, 65, 88 and 114</td></tr>
<tr><td colspan="3">Adjust the monitor brightness
• “Adjusting the monitor brightness” on page 76
• “BRIGHTNESS setting” on page 138</td></tr>
<tr><td colspan="3">Playback on a TV
• “PLAYING BACK ON A TV” on page 161
Set the TV system
• “TV output setting” on pages 140 and 145
How to use Xacti Library
• “Xacti Library” on page 162</td></tr>
</table>

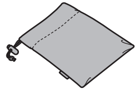
QUICK SEARCH BY OPERATION

File managing/processing		
Basic operation	Convenient functions	Additional functions
Search for image/audio files • "21-image display playback" on page 93 • "Selecting the playback folder" on pages 66 and 94		
Delete files • "DELETING FILES" on pages 58, 65 and 90	**Protect files from accidental erasure** • "File protect setting" on pages 65 and 115 **Format a card** • "Formatting (initializing)" on pages 140 and 152	
Delete a part of a video clip and join video clips • "Editing video clips" on pages 66 and 119		
Specify the number of prints, index print, and date imprint • "Printing instructions" on pages 66 and 129		
View the settings that were in effect when the image/audio files were recorded • "FILE INFO DISPLAY" on page 133		

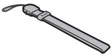
Using with a computer		
Basic operation	**Convenient functions**	**Additional functions**
Use the camera as a card reader • "USING AS A CARD READER" on page 9 in the Xacti Software CD INSTRUCTION MANUAL		
Copy files from your camera to a computer • "Connect your camera to a computer" on page ix		
Burn files copied to the computer onto a DVD • "Burn video clips onto a DVD (For Windows Vista users)" on page xi		
Playback • "About video clip files recorded with this camera" on page 13 in the Xacti Software CD INSTRUCTION MANUAL		
Using as a webcam • "Using as a PC camera" on page 15 in the Xacti Software CD INSTRUCTION MANUAL		
Record an image of the computer screen • "SCREEN CAPTURE" on page 17 in the Xacti Software CD INSTRUCTION MANUAL		

CHECKING THE INCLUDED ACCESSORIES

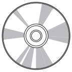
- **Soft case (page 14): 1**



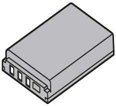
- **Handstrap (page 13): 1**



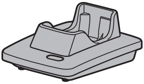
- **Xacti Software CD (CD-ROM) (page 4 in the Xacti Software CD INSTRUCTION MANUAL): 1**



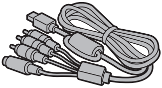
- **Li-ion battery pack (page 34): 1**



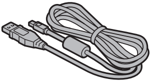
- **Docking station (pages 25 and 29): 1**



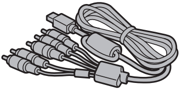
- **Dedicated S-AV interface cable (pages 157 and 158): 1**



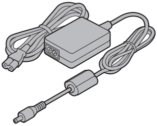
- **Dedicated USB interface cable (page 7 in the Xacti Software CD INSTRUCTION MANUAL): 1**



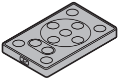
- **Dedicated component cable (page 159): 1**



- **AC adaptor and power cord (pages 29, 37 and 38): 1**

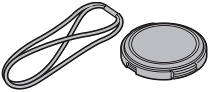


- **Remote control unit (pages 26, 30 to 32 and 83): 1**

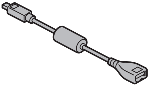


FOR CALIFORNIA, U.S.A. ONLY
Perchlorate Material - special handling may apply.
The lithium battery used in this camera contains perchlorate material, which may require special handling. See www.dtsc.ca.gov/hazardouswaste/perchlorate.

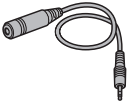
- **Lens cap (page 13): 1**



- **Dedicated USB converter cable: 1**
  - For use with the Xacti Library feature

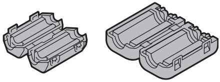


- **Microphone connection cable (page 166): 1**

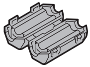


- **Cores: 3**

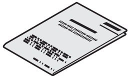
For HDMI cable



For microphone connection cable



- **"SAFETY MANUAL" (safety precautions booklet) Please read this booklet carefully before using the camera.**



- **Quick Guide Included with model VPC-HD2000GX. Not included with other models.**



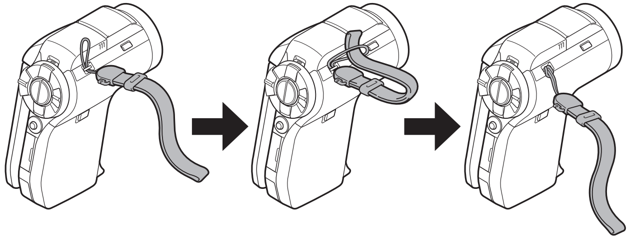
- **Xacti Library Instruction Manual**



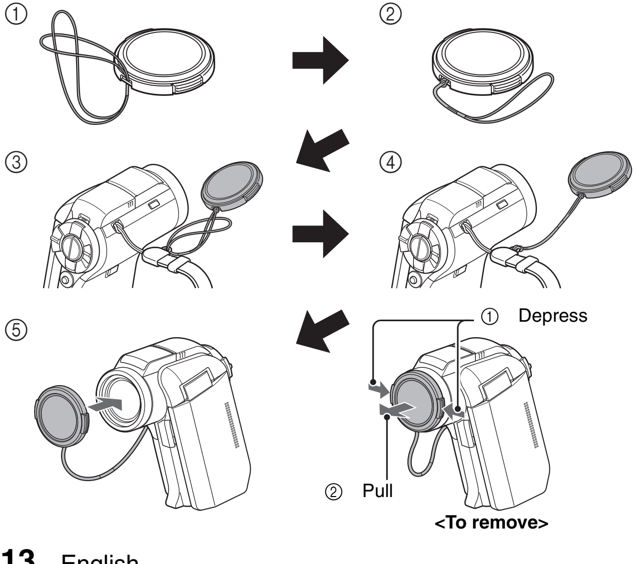
CHECKING THE INCLUDED ACCESSORIES

How to use the accessories

■ **Handstrap**

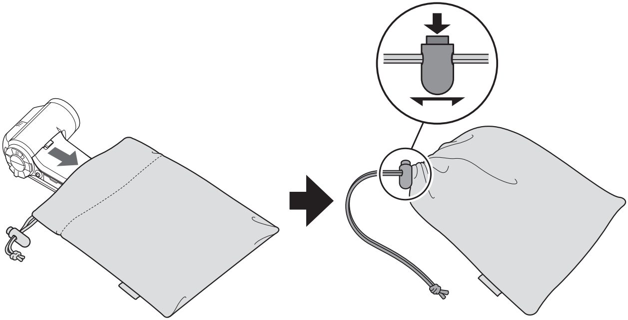


■ **Lens cap**



<To remove>

■ Soft case



ABOUT THE SEPARATELY SOLD ACCESSORIES AND THE CARD

Separately sold accessories

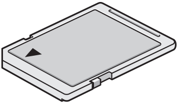
- **HDMI cable VCP-HDMI01**
  Cable for connecting to the HDMI terminal on the docking station.
- **Lithium-ion Battery Charger VAR-L50**
  Battery charger for the supplied or separately sold lithium-ion battery pack (DB-L50A).
- **Lithium-ion Battery DB-L50**
  Same model as the supplied lithium-ion battery pack.
- **Wide Conversion Lens VCP-L07W**
  Expand your camera's wide-angle range.
- **Tele Conversion Lens VCP-L16T**
  Make distant objects appear closer.
- **Semi Fish-eye Lens VCP-L04F**
  For wide-angle shots close to the fisheye lens.
- **Wireless microphone HM-W300**
  Record sound from the stereo microphone located at a distance from the camera.

Recommended accessory

- **External microphone (Product code: 645 056 9692)**
  The recommended stereo microphone for this camera.

Media cards that can be used with this camera

The type of card that can be inserted into and used with this camera is:
- SD Memory Card
- SDHC Memory Card



What “card” means in this manual

- In this manual, SD Memory Cards and SDHC Memory Cards that can be used in this digital camera are referred to as “card”.

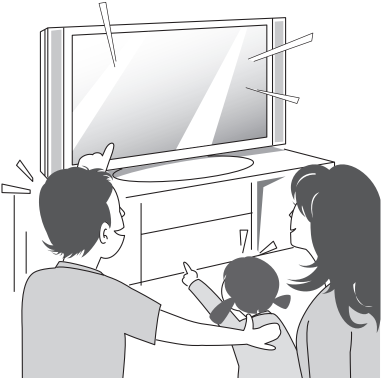
GETTING THE MOST OUT OF YOUR CAMERA

Your dual camera can record video clips in Full High Definition*. It includes an operation mode that lets even novice shutterbugs record and play back without getting flustered, as well as software with which you can easily create your original DVDs. In addition, it comes with the “Xacti Library” feature for saving recorded data to hard disk and managing files without using a computer.

High-quality images with “Full High Definition*” (pages 60, 71 and 96)

Your camera can capture full high definition (full HD) 1920 × 1080-pixel video clips. Also, the H.264/MPEG-4 AVC standard is used for formatting video files. You get both compact file size and high picture quality in one high-performance camera.

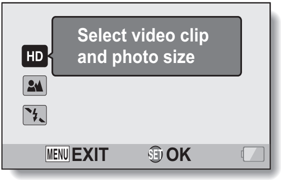
* “Full High Definition” by SANYO Dual Camera signifies recording at a resolution of 1920 pixels horizontally ×1080 pixels vertically.



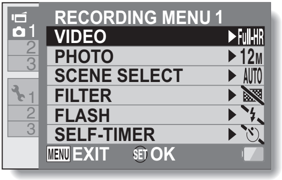
Includes SIMPLE mode for quick-and-easy operation (page 47)

Select from two recording/playback modes: the "SIMPLE mode" for users new to the camera, and the "NORMAL mode" for full use of all the camera's many features and functions.

Example:



<SIMPLE Mode Recording Menu>



<NORMAL Mode Recording Menu>

Image stabilizer for sharp pictures (pages 62 and 103)

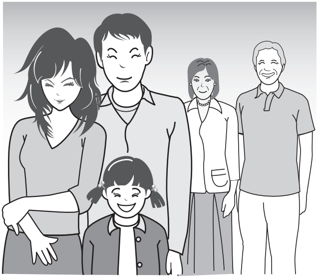
Your camera can compensate for the camera shake that results in blurry images when you try to capture a fast-moving subject or zoom in on a subject. Image stabilizer functions for both video clip recording and still image shots are on board.



GETTING THE MOST OUT OF YOUR CAMERA

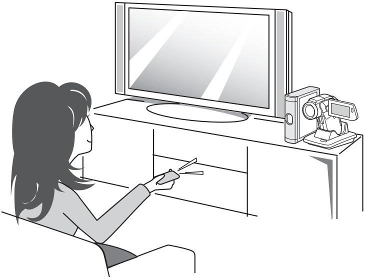
Sharp face shots (pages 64 and 109)

Your camera is equipped with a face recognition feature which detects the subject's face even when slightly lit from behind or in dim surroundings and automatically adjusts the focus and brightness to compensate. Now those otherwise perfect photos that are marred by shadowed faces can be minimized.



Xacti Library feature (page 162)

The Xacti Library feature feature allows you to save files recorded with your camera to a large-capacity hard disk without using a computer and play them back on your TV. No computer operation is involved. You can view full high-definition images right on your TV screen.



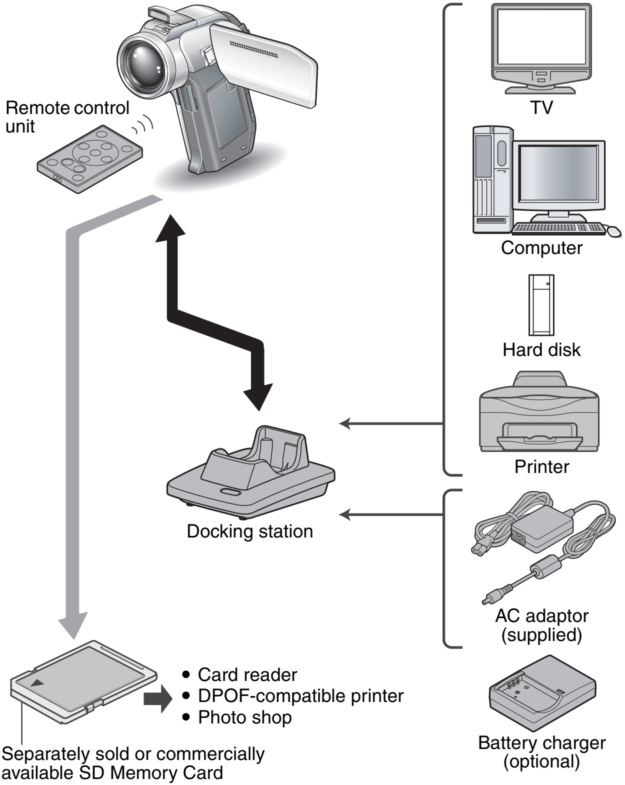
Lots of accessories for optimal use of your captured images (page 21, and page 4 in the Xacti Software CD INSTRUCTION MANUAL)

Use the accessory cables to view images on a TV or computer. Or connect the camera directly to a printer to make prints of your photos. And with the software in the supplied CD-ROM (Xacti Software CD), you can create your original DVDs and CDs.



SYSTEM MAP

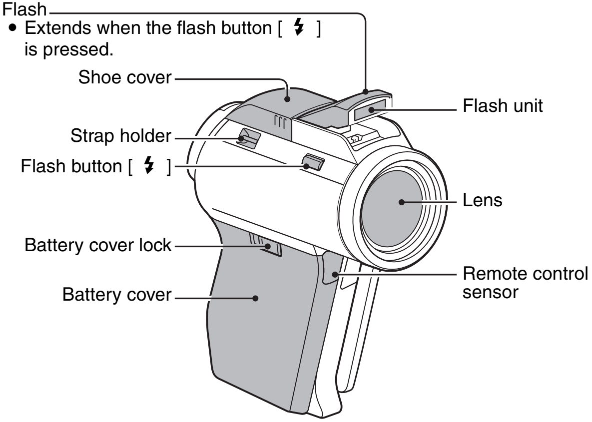
You can connect the camera to various devices to expand its capabilities.

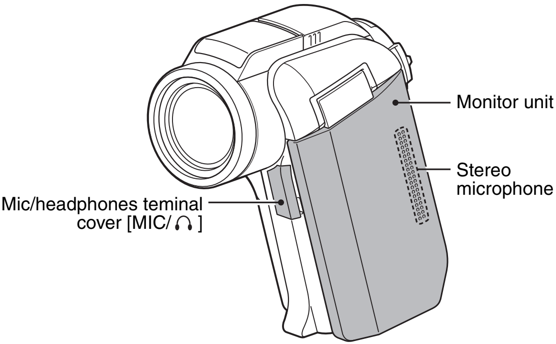


PARTS NAMES

Camera

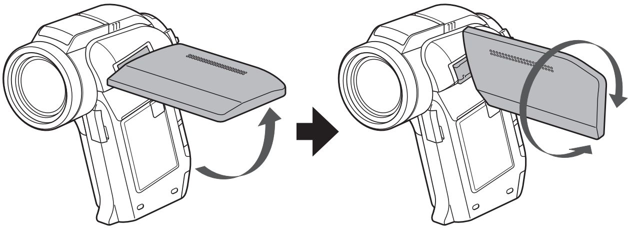
Front



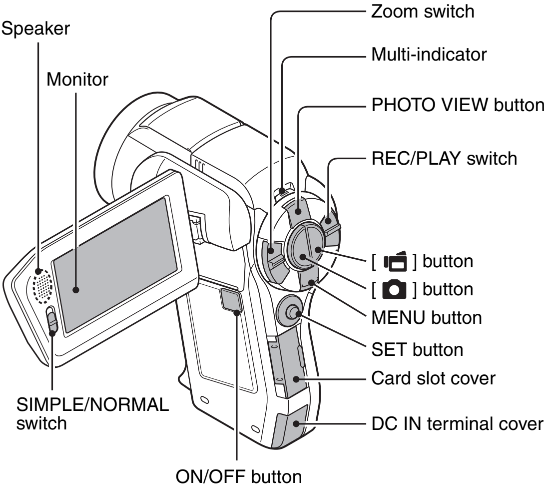


PARTS NAMES

<To open the monitor unit>

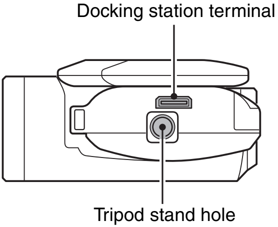


Rear



Zoom switch
Speaker
Multi-indicator
Monitor
PHOTO VIEW button
REC/PLAY switch
[ ] button
[ ] button
MENU button
SET button
Card slot cover
SIMPLE/NORMAL switch
DC IN terminal cover
ON/OFF button

Bottom

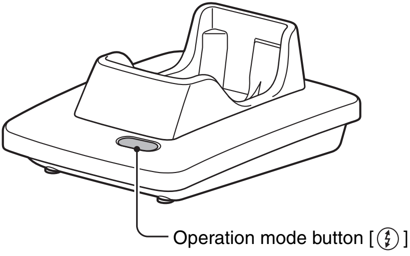


Docking station terminal
Tripod stand hole

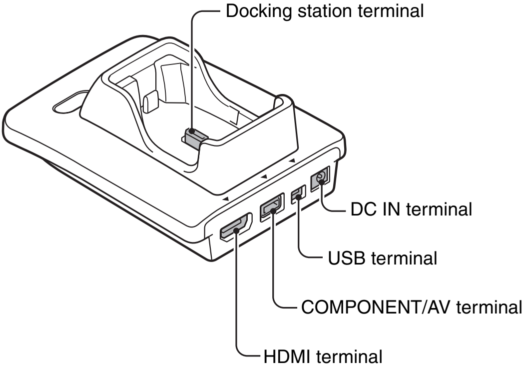
PARTS NAMES

Docking station

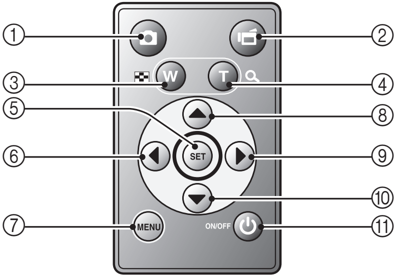
Front



Rear



Remote control unit



<In the recording mode>

① [📷] button
② [🎥] button
③ Works the same as pushing zoom switch toward the [W] ([▦]) side
④ Works the same as pushing zoom switch toward the [T] ([🔍]) side
⑤ SET button
⑥ Works the same as toggling SET button to the left
⑦ MENU button
⑧ Works the same as toggling SET button up
⑨ Works the same as toggling SET button to the right
⑩ Works the same as toggling SET button down
⑪ ON/OFF button
- Works only when the camera is set in the docking station.

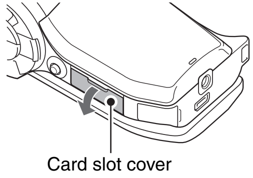
<In the playback mode>

① [📷] button
② [🎥] button
③ Works the same as pushing zoom switch toward the [W] ([▦]) side
④ Works the same as pushing zoom switch toward the [T] ([🔍]) side
⑤ SET button
⑥ Works the same as toggling SET button to the left
⑦ MENU button
⑧ Works the same as toggling SET button up
⑨ Works the same as toggling SET button to the right
⑩ Works the same as toggling SET button down
⑪ ON/OFF button
- Works only when the camera is set in the docking station.

INSTALLING THE CARD

Be sure to format a newly purchased card or one that was used in another device before using it in your camera (pages 140 and 152). If an unformatted card is used, the card itself may become unusable.

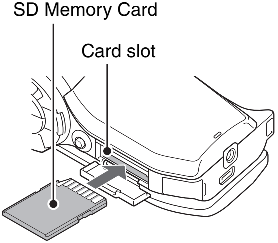
1 Open the card slot cover, and insert the card in the card slot.



2 Insert the card all the way in.

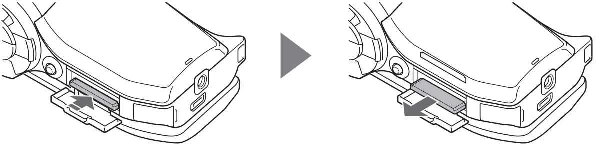
- Firmly insert the card until it clicks into place.

3 Close the card slot cover.



<To remove the card...>

- To remove the card, press it in, and then release. The card will protrude slightly, and you can then pull it out.



SETUP

CAUTION

Do not attempt to forcibly remove the card

- Doing so may damage the card or the stored files.

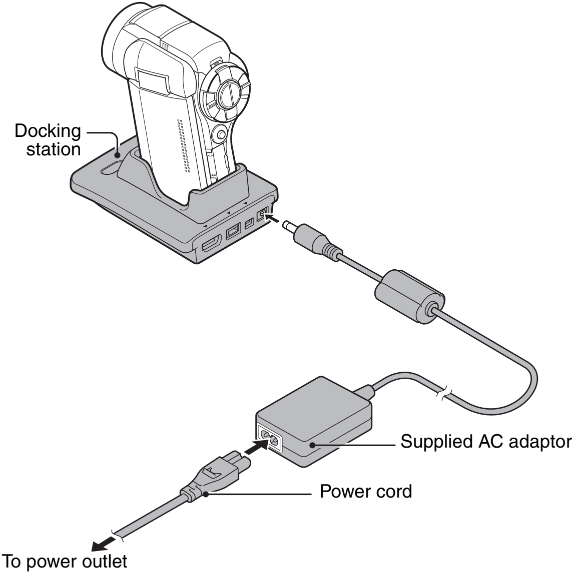
If the multi-indicator is flashing red...

- Never remove the card when the multi-indicator is flashing red, as doing so may result in loss of files stored in the card.

PREPARING THE DOCKING STATION

The supplied docking station is used to connect your camera to a computer, printer or TV, as well as to charge the battery pack installed in the camera.

1 Connect the docking station to a power outlet.
- Use the supplied AC adaptor and power cord.



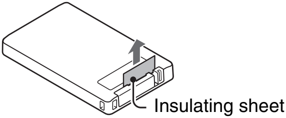
PREPARING THE REMOTE CONTROL UNIT

The remote control unit can be used to take pictures and play them back with the camera.

Prepare the battery

A battery is already installed in the remote control unit at the time of purchase.

1 Pull out the battery insulating sheet.
- The remote control unit becomes operable when the insulating sheet is removed.

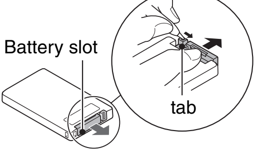


Replacing the remote control unit battery

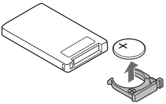
Follow the procedure below to replace the CR2025 battery used in the remote control unit approximately every year (differing depending on the amount of use).

Remove the old battery

① **Pull out the battery slot.**
- While pressing the tab, pull the battery slot out.

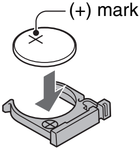


② **Remove the battery.**

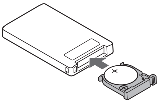


Insert a new battery

① **Insert a new battery.**
- First wipe the battery with a clean, dry cloth, and insert it with the (+) mark facing up.



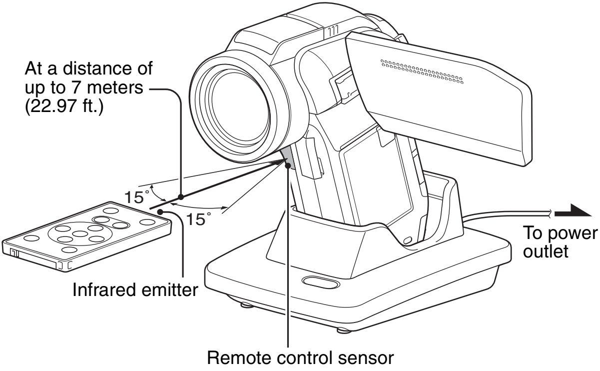
② **Re-insert the battery slot.**



PREPARING THE REMOTE CONTROL UNIT

How to use the remote control unit

The remote control unit can be used at an angle that is displaced 15 degrees horizontally from the remote control sensor on the front of the camera, at a distance of up to 7 meters (22.97 ft.). When operating the remote control unit, remove any object that may obstruct the path between it and the remote control sensor.



CAUTION

- If the remote control unit is operated in sunlight or under inverter lighting, the remote control receiving range may become shorter. This is a characteristic of the infrared remote control unit and is not a defect. To avoid this malfunction when operating the remote control unit, take care to shield the remote control sensor from strong light.

Changing the remote control code

The remote control unit will also work with other Sanyo cameras that can be operated by infrared remote control. When more than one camera is present, it is recommended to change the remote control code to ensure that only the intended camera operates when the remote control unit is used. The remote control code is set to “RC CODE 1” at the time of purchase.

<Changing the remote control code from “RC CODE 1” to “RC CODE 2”>

1 Aim the infrared emitter at the remote control sensor on the docking station.

2 Simultaneously press the MENU button and the [🎥] button for at least 3 seconds.

3 Press a button on the remote control unit and check that the camera is receiving correctly.

- The remote control codes are retained even if the batteries in the remote control unit or camera are replaced.
- If the remote control codes for the remote control unit and the camera and do not match, the remote control unit cannot be used to operate the camera.

<Resetting the remote control code to “RC CODE 1”>

1 Aim the infrared emitter at the remote control sensor on the docking station.

2 Simultaneously press the MENU button and the [📷] button for at least 3 seconds.

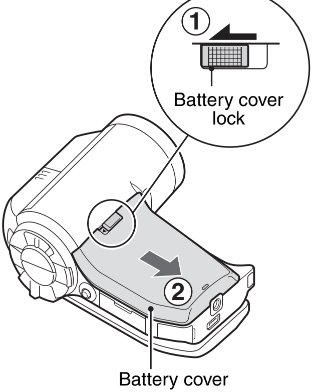
PREPARING THE POWER

Please charge the supplied battery pack before using it. Power to the camera can also be supplied from a power outlet if the docking station or the AC adaptor is used.

Charging the battery pack

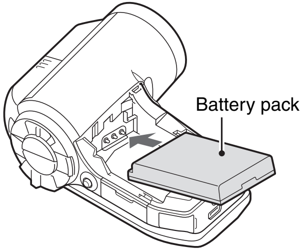
1 While pressing the battery cover lock, slide it (①), and pull out the battery cover toward the bottom of the camera (②).

- The battery cover comes off.

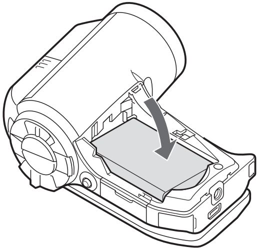


2 Insert the battery pack.

- Take care that it is positioned correctly.



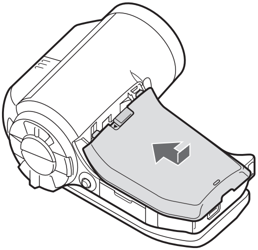
3 Replace the battery cover.



<To remove the battery pack...>

- Raise the edge of the battery pack to remove it.

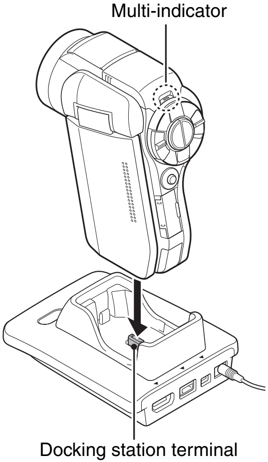
4 Prepare the docking station (page 29).



SETUP

5 Close the camera's monitor unit, and set the camera in the docking station.

- Set the camera securely, making sure that the camera is correctly oriented in relation to the terminal contacts in the docking station.
- Charging begins when the camera is set in the docking station.
- During charging, the multi-indicator is lit red. When charging is completed, the indicator turns off.
- If the multi-indicator flashes red, it indicates that the battery pack is defective or the camera is not correctly set in the docking station. Reset the camera correctly in the docking station.
- The charging time is approx. 200 minutes.
- Charging is executed when the battery temperature is approximately 0 to 35 °C (32 to 95 °F). If the battery temperature exceeds 35 °C (95 °F), the safety mechanism will operate to automatically interrupt charging. The multi-indicator flashes red in this case also. After the battery cools down, charging begins again, and the multi-indicator lights red.
- The AC adaptor (supplied) can be connected to the camera's DC IN terminal to charge the battery.



CAUTION

Using the camera when it is set in the docking station...

- You can photograph and view images while the camera is set in the docking station.

Do not charge the battery pack immediately after the camera has been in continuous use for a long time

- The battery pack becomes hot when the camera is used continuously for a long time. If you attempt to charge the battery pack in this state, the multi-indicator may flash red and it may not be possible to charge the battery pack. Wait until the battery pack has cooled down before attempting to charge it.

Does the battery pack appear swollen?

- The lithium-ion battery used in this camera may expand slightly when stored in a hot environment or repeatedly used, but this is not a safety hazard.

HINT

About the internal backup battery

- This camera's internal battery serves to maintain the date and time settings, as well as the shooting settings. The backup battery will be fully charged when the battery pack is kept in the camera continuously for about 2 days. In the fully charged state, the backup battery will maintain the camera settings for about 7 days.

When not using the camera for a long time, remove the battery pack

- A small amount of power is still used even if the camera is turned off, and it is therefore recommended that the battery pack be removed from the camera if it is not going to be used for a long time. Note that when the battery pack is removed for a long period, the time and date settings may be cleared. Before using your camera again, be sure to confirm that the camera settings are correct.

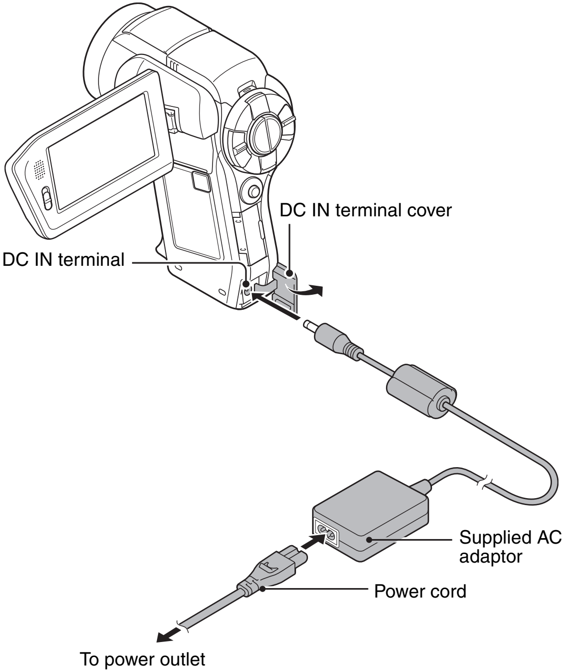
To prolong the life of the battery pack

- Although the battery pack is an expendable item, you can maximize the life of the battery by heeding the following suggestions.
  - Do not leave the battery under the hot summer sun or exposed to other high-temperature environments.
  - Do not continually recharge the battery when it is already fully charged. After fully charging it once, for example, use it for a while to partially discharge it before recharging it again.
  - When the battery is not to be used for a long time, if possible store the partially charged (not fully charged) battery in a cool environment.

When using a power outlet

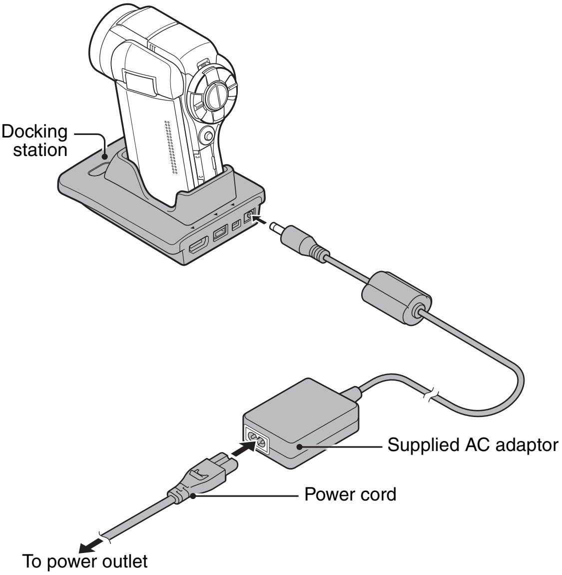
Power to the camera can be supplied from a power outlet if the docking station or the AC adaptor is used.

Using the AC adaptor



Using the docking station

Use the supplied AC adaptor and power cord to connect the docking station to a power outlet, and set the camera in the docking station.



About recharging

Recharging takes place only when the camera is turned off, or when the power save function or the sleep function has been activated. Recharging does not take place when the camera is in the recording mode or playback mode.

About the temperature alert icon

During camera use, if the temperature of the battery or inside the camera (excluding the battery) rises, a temperature alert icon will appear as described below.

■ **When the battery or internal camera (excluding battery) temperature rises during use**

- During camera use, if the temperature of the battery or inside the camera (excluding the battery) rises, a icon lights on the monitor. It is still possible to record and play back even when the icon is lit; however it is advised that you discontinue use as soon as possible and turn the camera off.
- If the temperature rises further, the icon will start to flash, and the camera will turn off automatically.
  The camera cannot be turned on until the temperature has dropped (or as long as the icon remains flashing). Please wait until the temperature has dropped before resuming use.
- During video recording, a countdown indicator will show the time starting about 15 seconds before shutdown. When the indicator shows 0 seconds, recording stops.
- If the camera is turned off while the temperature is high (that is, while the icon is flashing), it cannot be turned on again until the temperature has dropped (or as long as the icon remains flashing).

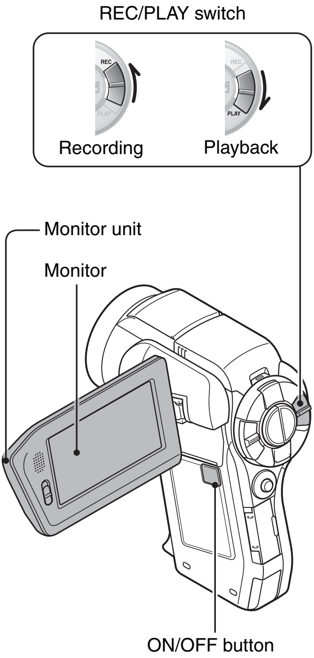
TURNING THE CAMERA ON AND OFF

Turning on the camera

1 Set the REC/PLAY switch.
To shoot pictures:
Set to REC.
To play back images:
Set to PLAY.

2 Open the monitor unit.

3 Press the ON/OFF button for at least 1 second.
- The camera turns on.
- If the date and time have not been set, the screen to set the date and time is shown on the monitor.



Turning on the camera when the power save (sleep) mode is active

In order to preserve battery pack power, the power save (sleep) function will automatically turn off the camera after about 1 minute of no use during shooting, or about 5 minutes of no use during playback (factory-preset setting).

- When the power save mode is active, you can restore the power by any of the following methods:
  - **Move the REC/PLAY switch.**
  - **Press the ON/OFF button.**
  - **Press the [ ] or [ ] button.**
  - **Press the SET or MENU button.**
  - **Push the zoom switch.**
  - **Move the SIMPLE/NORMAL switch.**
  - **Press the PHOTO VIEW button.**
    - When the MENU button is used to turn on the camera, the screen to set the operation sounds appears.
- After the power save mode has been active for about 1 hour, the camera will switch to the standby mode. In this case, you can restore the power by pressing the ON/OFF button, or by closing and then opening the monitor unit.
- When the AC adaptor is connected, the power save mode will become active about 5 minutes after the camera is turned on (factory-preset setting).
- The user can specify the time elapsed before the power save mode is activated (page 140).
- When the camera is connected to a computer or printer, the power save mode becomes active after about 12 hours.

Turning off the camera

1 **Press the ON/OFF button for at least 1 second.**
- The camera turns off.

HINT

To immediately activate the power save mode
- Press the ON/OFF button briefly to activate the power save function.

About the standby mode
- To turn off the camera only briefly, you can close the monitor unit to put the camera in the standby mode. The standby mode uses almost no power. When the monitor unit is opened again, the camera turns on immediately and you are ready to shoot or view images without any delay.

CAUTION

If the ⌚? icon appears...
- When a picture is taken, the date and time it was captured are recorded with it. If the date and time settings have not been completed (page 43), the date and time cannot be recorded with the captured images. For this reason, immediately after the camera is turned on, the “Set date and time” reminder briefly appears, after which the ⌚? icon is shown on the Recording Screen. To have the date and time recorded with the images, please complete this setting before capturing images.

DATE AND TIME SETTING

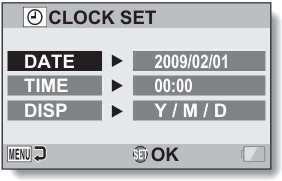
The camera will record the date and time an image or audio recording is taken so that you can display them during playback. Therefore, before capturing images, make sure the correct date and time are set.

- To correct the date and time setting, please see under **HINT** on page 45.

Example: To set the clock to 7:30 p.m. on December 24, 2009

1 **Turn on the camera (page 40), and press the SET button.**

- The Clock Set Screen appears.
- Follow the procedures below to enable or disable the date display during playback, to set the display format for the date, and to set the date and time.
- To display the Recording or Playback Screen, press the MENU button 2 times.



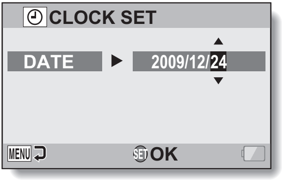
2 **Set the date.**

① Select “DATE”.

② Press the SET button.
- The Set Date Screen appears.

③ Set the date to “2009/12/24”.
- The date is set in the following order: Set the year → Set the month → Set the day.
- Toggle the SET button left or right to select year, month or day. Toggle the SET button up or down to increase or decrease the number.

④ Press the SET button.



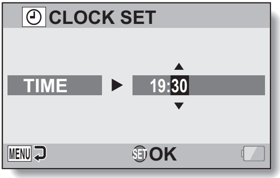
3 Set the clock.

① Select “TIME”.

② Press the SET button.
- The Set Time Screen appears.

③ Set the time to “19:30”.
- The time is set in the following order: Set the hour → Set the minute.
- A 24-hour clock is used for the time display.

④ Press the SET button.



4 Set the order in which the date is displayed during playback.

① Select “DISP”.

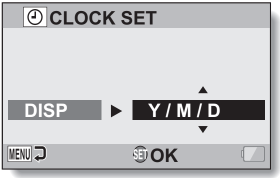
② Press the SET button.
- The Set Date Format Screen appears.

③ Toggle the SET button up or down.
- Toggle the SET button up to change the displayed date order as follows:

→ Y / M / D → M / D / Y → D / M / Y ─┐ (returns to Y / M / D)

Toggle the SET button down to change it in the reverse order.

④ Press the SET button.



SETUP

5 Press the MENU button.

- The date and time setting is completed.
- To display the Recording or Playback Screen, press the MENU button.

HINT

- Under normal conditions, while the battery pack is being replaced, an internal battery will maintain the date and time settings. However, there is a small chance the settings may be lost (the backup will last for about 7 days). It is recommended to check that the date and time settings are still correct after replacing the battery pack and before shooting or recording of any type (follow step **1**).

To correct the date and time settings

① Turn on the camera.
② Display the Option Setting Menu [1] (page 134).
③ Select “CLOCK SET” and press the SET button.
- The screen to set the date and time appears.
- The current date and time settings are shown.

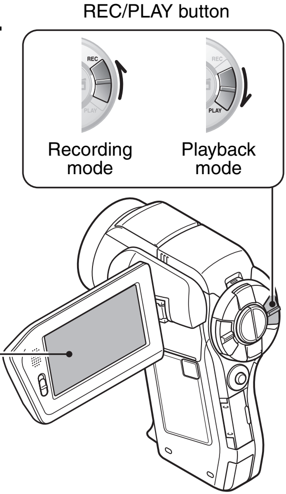
④ Select the line you wish to change, and make the correction.

SWITCHING BETWEEN THE RECORDING MODE AND PLAYBACK MODE

Switch between the recording mode (for recording) and the playback mode (for viewing your recorded images).

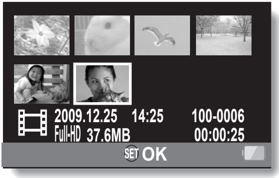
1 **Turn on the camera (page 40).**

2 **Set the REC/PLAY switch to the desired mode.**
For recording:
Set it to REC.
For playback:
Set it to PLAY.





<Example of the recording mode>



<Example of the playback mode>

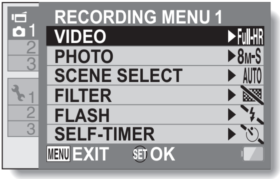
SIMPLE MODE/NORMAL MODE

About the SIMPLE mode and NORMAL mode

The “SIMPLE mode” comprises only those functions that are most often used and necessary to operate the camera, while the “NORMAL mode” enables full use of all the camera’s many functions. Select the mode that is suitable for your purposes.



<SIMPLE Mode Setting Screen>

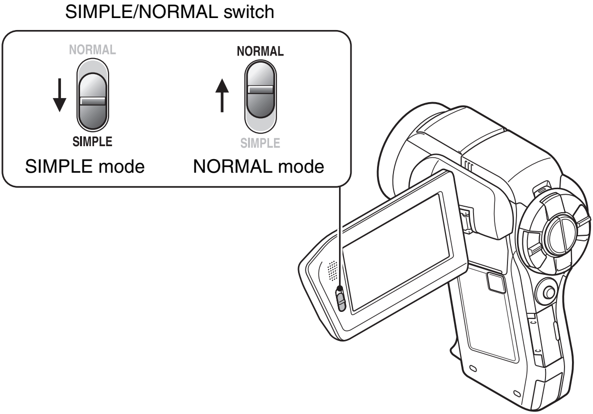


<NORMAL Mode Setting Screen>

Switching between the SIMPLE and NORMAL modes

Use the SIMPLE/NORMAL switch, located next to the monitor, to switch between the SIMPLE and NORMAL modes.

1 Set the SIMPLE/NORMAL switch to the desired mode.
SIMPLE mode: Set it to SIMPLE.
NORMAL mode: Set it to NORMAL.



SIMPLE MODE/NORMAL MODE

Accessing/exiting the SIMPLE/NORMAL Mode Menu Screen

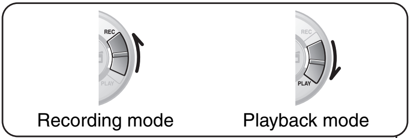
1 Set the camera to the recording or playback mode.

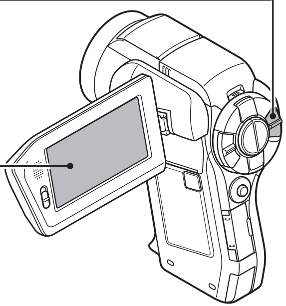
- Use the REC/PLAY switch to select the recording mode or playback mode.

To access the Recording Menu:
Set the switch to REC.

To access the Playback Menu:
Set the switch to PLAY.

REC/PLAY switch







<Recording mode>



<Playback mode>

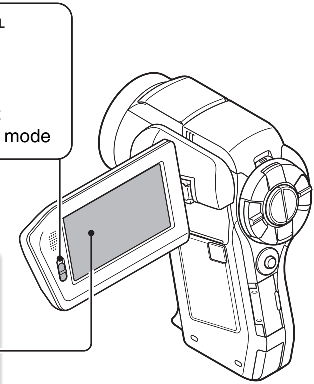
2 Set the camera to the SIMPLE mode or NORMAL mode.

- Use the SIMPLE/NORMAL switch to select the desired mode.

To select the SIMPLE mode:
Set the switch to SIMPLE.

To select the NORMAL mode:
Set the switch to NORMAL.

SIMPLE/NORMAL switch





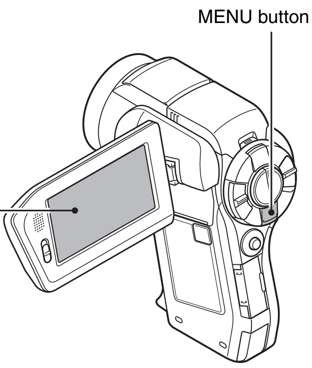
<Example: NORMAL Mode Recording Screen>

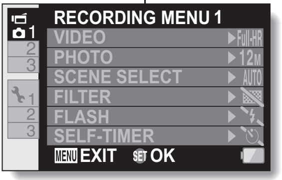


<Example: SIMPLE Mode Recording Screen>

3 Press the MENU button.

- The Menu Screen for the mode you selected in steps **1** and **2** appears on the monitor.
  Display the SIMPLE Mode Setting Menu → go to page 52, step **4**.
  Display the NORMAL Mode Setting Menu → go to page 53, step **4**.
- To cancel the Menu Screen, press the MENU button.





<Example: NORMAL Mode Recording Menu>

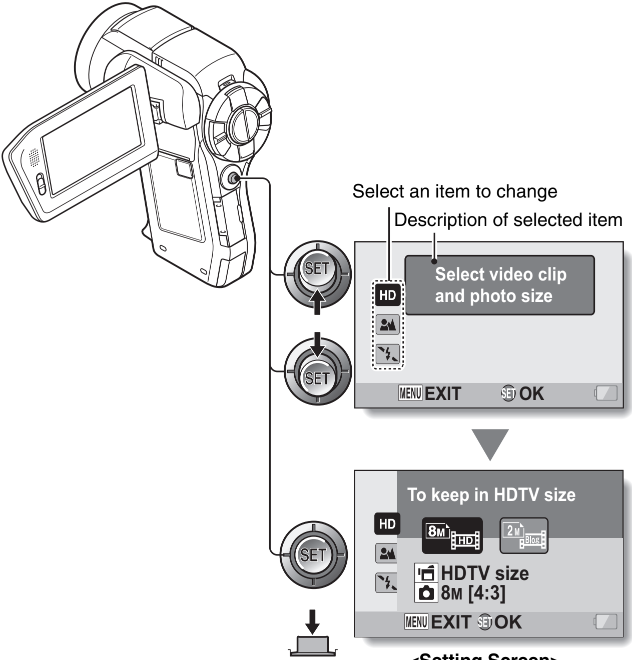


<Example: SIMPLE Mode Recording Menu>

To access the SIMPLE Mode Setting Menu Screen

4 Toggle the SET button up or down to select the item you wish to change, and press the SET button.

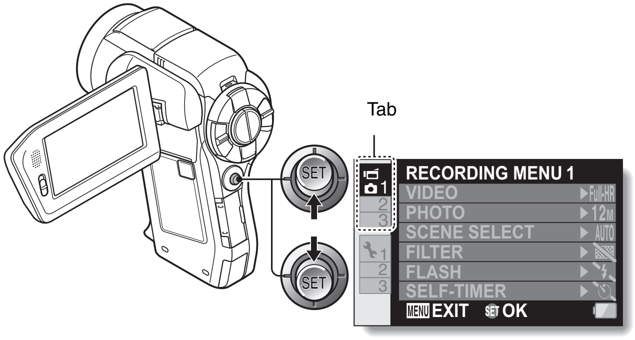
- The Setting Screen for the selected item appears.



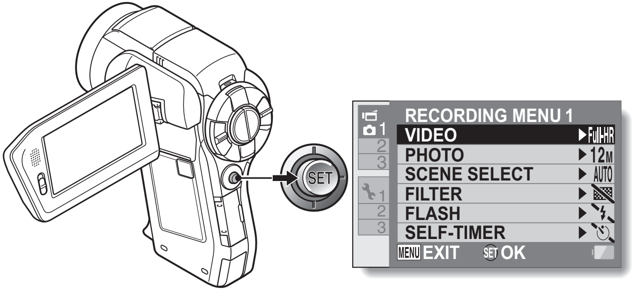
<Setting Screen>

To access a NORMAL Mode Setting Menu

4 Toggle the SET button up or down to select a tab.
- The Menu Screen for the selected tab appears.

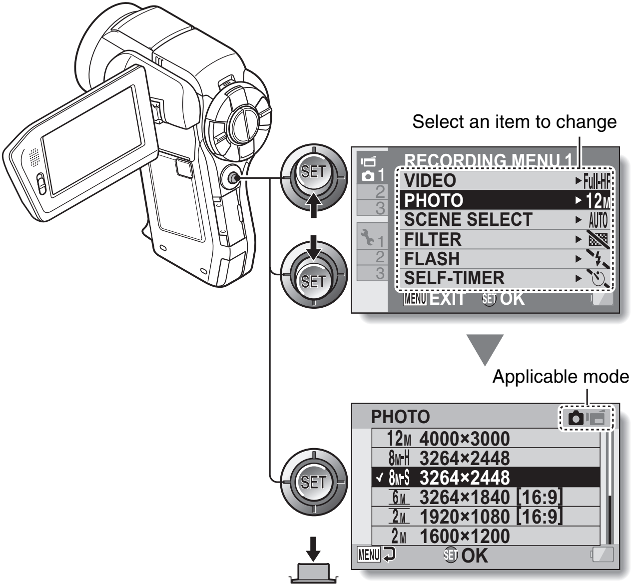


5 Toggle the SET button to the right.



6 Toggle the SET button up or down to select the item you wish to change, and press the SET button.

- The Setting Screen for the selected item appears.
- To return to the Menu Screen, press the MENU button.



<Setting Screen>

HINT

About the applicable mode indicator

- This indicator shows the shooting mode(s) for which the selected setting is effective.
  - [still camera icon] : This setting is effective during still image shooting.
  - [video camera icon] : This setting is effective during video clip recording.
  - [still camera icon] [video camera icon] : This setting is effective during still image shooting and video clip recording.

Overview of the SIMPLE Mode Setting Screen

SIMPLE Mode Recording Menu



① **Recording size (page 71)**
- Select the video clip size to record.

: The video clip size is 1920 × 1080 pixels, recorded at 60 fields/sec. The captured still image size is 3264 × 2448 (4:3) pixels.

: The video clip size is 640 × 480 pixels, recorded at 30 frames/sec. The captured still image size is 1600 × 1200 (4:3) pixels.

② **Focus range (page 72)**
- Select the focus range that corresponds to the distance to the subject.

: The camera automatically focuses on the subject within a range of 50 cm (19.69 in.) to infinity (normal).

: The camera focuses on a subject within a range of 1 cm (0.39 in.) to 1 m (3.28 ft.) (super macro).

③ **Flash (page 77)**
- Specify how the flash will operate.

: The camera detects the subject brightness and uses the flash only when necessary.

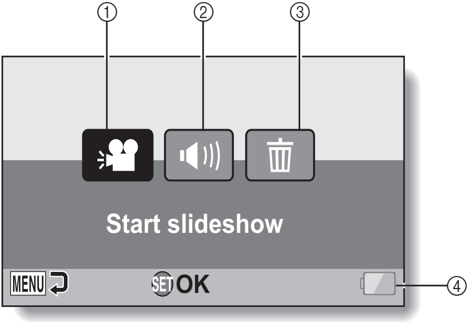
: The flash operates with every image captured regardless of the conditions.

: The flash does not operate even in dark situations.

: The camera detects the subject brightness and uses the flash only when required. At this time the flash operates in a manner that reduces the red reflection ("red-eye") in the subject's eyes.

④ **Remaining battery power indication (page 155)**

SIMPLE Mode Playback Menu



① **Slideshow (page 88)**
- Specify the slideshow settings and play the slideshow.

② **Playback volume (page 89)**
- Adjust the volume for video clip and audio file playback.

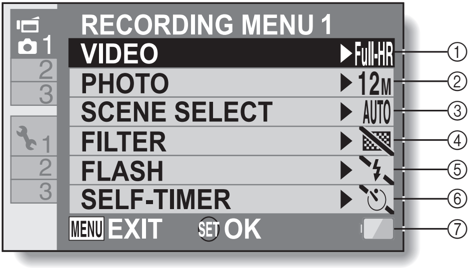
③ **Delete (page 90)**
- Delete files.

④ **Remaining battery power indication (page 155)**

Overview of the NORMAL Mode Setting Screen

NORMAL Mode Recording Menu

<Tab 1>



① **Video clip settings (page 96)**

<HD mode>

- Full-HR: Record at 1920 × 1080 pixels, 60 fps (60p).
- Full-HD: Record at 1920 × 1080 pixels, 60 fields/s (60i).
- Full-SHQ: Record at 1920 × 1080 pixels, 30 fps (30p).
- HD-SHQ: Record at 1280 × 720 pixels, 30 fps (30p).

<SD mode>

- TV-SHQ: Record at 640 × 480 pixels, 30 fps (30p).
- Web-SHR: Record at 448 × 336 pixels, 240 fps (High-speed recording).
- Web-UHR: Record at 192 × 108 pixels, 600 fps (High-speed recording).
- : Make an audio recording.

② **Still image settings (page 100)**

- 12M: Image size is 4000 × 3000 pixels.
- 8M-H: Image size is 3264 × 2448 pixels (low compression).
- 8M-S: Image size is 3264 × 2448 pixels (normal compression).
- 6M: Image size is 3264 × 1840 pixels (16:9 aspect ratio).
- 2M: Image size is 1920 × 1080 pixels (16:9 aspect ratio).
- 2M: Image size is 1600 × 1200 pixels.
- 0.9M: Image size is 1280 × 720 pixels (16:9 aspect ratio).
- 0.3M: Image size is 640 × 480 pixels.
- 8M: 3264 × 2448-pixel sequential shots.
- 4M: 2288 × 1712-pixel sequential shots.

③ **Scene select (page 101)**

- AUTO: Full auto setting
- : Sports mode
- : Portrait mode
- : Landscape mode
- : Night view portrait mode
- : Snow & beach mode
- : Fireworks mode
- : Lamp mode

④ **Filter (page 101)**

- : No filter
- : Cosmetic filter
- : Monochrome filter
- : Sepia filter

⑤ **Flash**

- A: The camera will detect the subject brightness and use the flash only when necessary.
- : The flash will operate with every image captured regardless of the conditions.
- : The flash will not operate even in dark situations.
- : The camera will detect the subject brightness and use the flash only when required. At this time the flash will operate in a manner that reduces the red reflection ("red-eye") in the subject's eyes.

⑥ **Self-timer (page 102)**

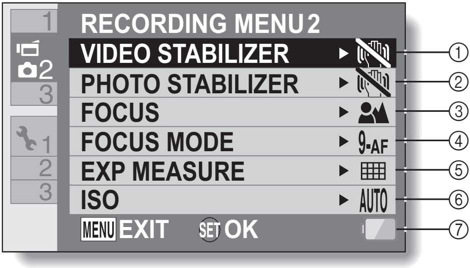
- : Self-timer is off.
- 2: Shooting begins 2 seconds after the [ ] or [ ] button is pressed.
- 10: Shooting begins 10 seconds after the [ ] or [ ] button is pressed.

⑦ **Remaining battery power indication (page 155)**

SETUP

SIMPLE MODE/NORMAL MODE

<Tab 2>



1. **Video stabilizer (page 103)**
   - Compensate for camera shake during video clip recording.

   [icon]: Record with image stabilizer on.

   [icon]: Record without image stabilizer.

2. **Photo stabilizer (page 103)**
   - Compensate for camera shake during still image shooting.

   [icon]: Shoot with image stabilizer on.

   [icon]: Shoot without image stabilizer.

3. **Focus range (page 104)**
   - Select the focus range that corresponds to the distance to the subject.

   [icon]: The camera automatically focuses on the subject with a range of 50 cm (19.69 in.) to infinity (normal).

   MF: The focus can be set manually.

   [icon]: The camera focuses on the subject within a range of 1 cm (0.39 in.) to 1 m (3.28 ft.) (super macro).

4. **Focus area (page 105)**

   9-AF: 9-point range finder focus

   S-AF: Spot focus

5. **Light-measuring mode (page 105)**

   [icon]: Multi-section light measuring

   [icon]: Center-weighted light measuring

   [icon]: Spot light-measuring

6. **ISO sensitivity (page 106)**

   AUTO: Sensitivity is set automatically (video clip recording: ISO 50 to 800; still image shooting: ISO 50 to 200)

   50: Sets sensitivity to ISO 50

   100: Sets sensitivity to ISO 100

   200: Sets sensitivity to ISO 200

   400: Sets sensitivity to ISO 400

   800: Sets sensitivity to ISO 800

   1600: Sets sensitivity to ISO 1600

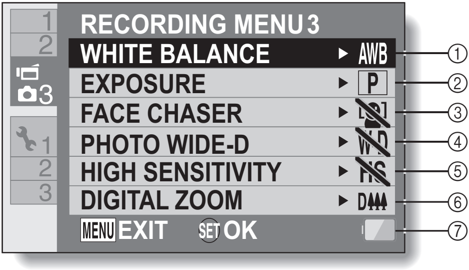
   3200: Sets sensitivity to ISO 3200 (video clip recording: ISO 1600)

   - The indicated ISO value is the standard output sensitivity.

7. **Remaining battery power indication (page 155)**

SETUP

<Tab 3>


1
2
3
1
2
3
RECORDING MENU 3
WHITE BALANCE
AWB
EXPOSURE
P
FACE CHASER
PHOTO WIDE-D
HIGH SENSITIVITY
DIGITAL ZOOM
MENU EXIT
SET OK
①
②
③
④
⑤
⑥
⑦

① **White balance (page 107)**

AWB: White balance is automatically adjusted depending on the ambient lighting (auto).

☼: For shooting in sunny conditions (fair).

☁: For shooting in overcast conditions (cloudy).

(fluorescent icon): For shooting under fluorescent lighting (fluorescent).

(incandescent icon): For shooting under incandescent lighting (incandescent).

(one push icon): For setting the most accurate white balance (one push).

② **Exposure (page 108)**

P: The exposure is set automatically.

S: Set the shutter speed manually.

A: Set the aperture manually.

M: Set the aperture and shutter speed manually.

③ **Face chaser (page 109)**

(face chaser icon): Enable face chaser.

(face chaser off icon): Disable face chaser.

④ **Photo wide D-range (page 110)**

W-D: Enable wide D-range shooting.

(W-D off icon): Disable wide D-range shooting.

⑤ **High sensitivity mode (page 111)**

HS: Increased sensitivity.

(HS off icon): Normal sensitivity.

⑥ **Digital zoom (page 111)**

(digital zoom icon): Enable the digital zoom.

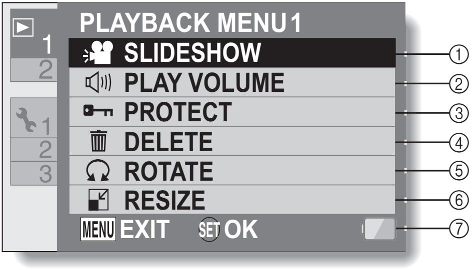
(digital zoom off icon): Disable the digital zoom.

⑦ **Remaining battery power indication (page 155)**

SETUP

NORMAL Mode Playback Menu

<Tab 1>



① **Slideshow (page 114)**
- Specify the slideshow settings and play the slideshow.

② **Playback volume (page 89)**
- Adjust the volume for video clip and audio file playback.

③ **Protect (page 115)**
- File protect setting (delete prohibited)

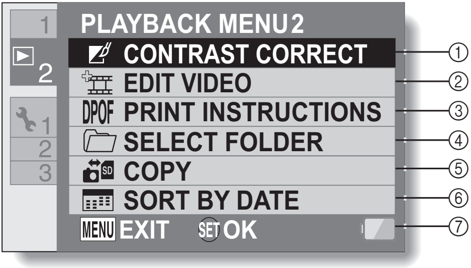
④ **Delete (page 90)**
- Delete files.

⑤ **Rotate (page 117)**
- Rotate a still image.

⑥ **Resize (page 117)**
- Reduce the resolution of a still image.

⑦ **Remaining battery power indication (page 155)**

<Tab 2>



① **Contrast correction (page 118)**
- Correct the contrast in the image.

② **Video clip edit (page 119)**
- Edit video clips.

③ **Printing instructions (page 129)**
- Specify the printing instructions (DPOF settings).

④ **Select folder (page 94)**
- Select a folder to play back.

⑤ **Copy**
- Copy files from/to the card to/from the Xacti Library (displayed only when Xacti Library is used).

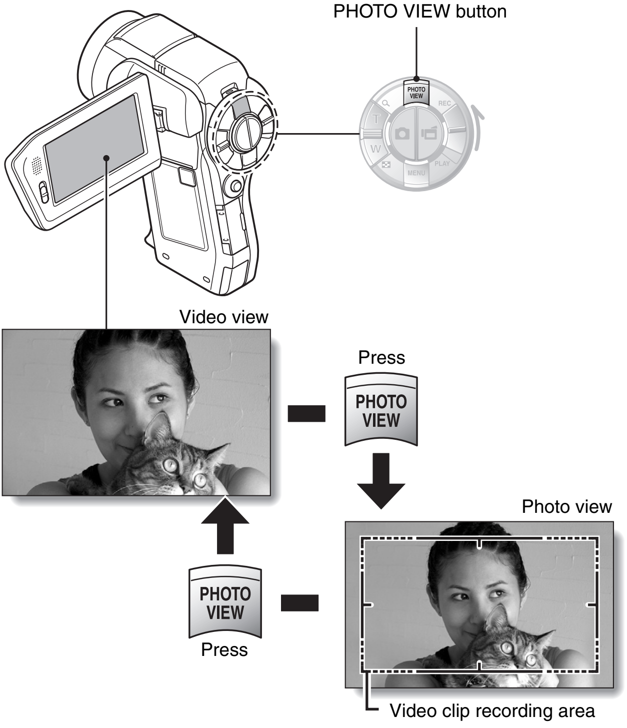
⑥ **Sort by date**
- Create dated folders and sort the files in one roll by date (displayed only when Xacti Library is used).

⑦ **Remaining battery power indication (page 155)**

FIELD OF VIEW

You can select whether to display either the Photo View Recording Screen or the Video View Recording Screen. The field of view is easier to see when the Recording Screen for the specific recording mode is selected.

- The PHOTO VIEW button is disabled when the camera is connected to a TV.

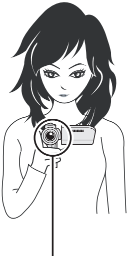


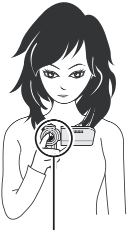
BEFORE TAKING PICTURES

For best results

Hold the camera securely, keeping your elbows close to your body and making sure the camera is stable.

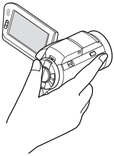
Correct hold	Incorrect hold



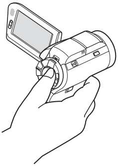


A finger is blocking the lens or flash.

<Holding the camera>



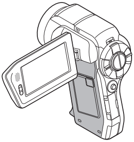
Example 1:
Grip the camera by wrapping the fingers of the right hand, from the little finger to the middle finger, around the camera, and hook the index finger above the lens.



Example 2:
Grip the camera by wrapping the fingers of the right hand, from the little finger to the index finger, around the camera.

Make sure that the lens and flash are not blocked by your fingers or the handstrap.

<When using the camera>



- Due to the characteristics of the camera, the outer surface may become warm during use, but this does not indicate a malfunction. (In particular, the area indicated by gray in the figure may become hot.)
- If the camera starts to feel uncomfortably hot during use, you might temporarily discontinue use until it cools down, or try holding it in your other hand for a while.
  Please use a tripod or other support when using the camera for a long time.

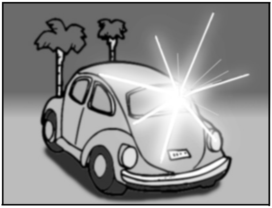
Using the autofocus

The autofocus will work in almost all situations; however, there are certain conditions that may cause the autofocus function to not work properly. If the autofocus function is not working properly, set the focus range to capture images (page 72).

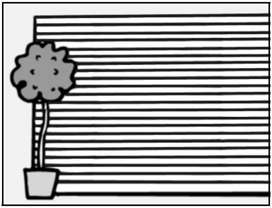
■ **Conditions that may cause incorrect focus**

The following examples are some of the situations where the autofocus function may not work.

- **Subjects with low contrast, very bright subjects at the center of the image or dark subjects or locations**
  Use the focus-lock function to lock the focus on an object with contrast at the same distance as the desired subject.



- **Subjects without vertical lines**
  Use the focus-lock function to lock the focus while framing the subject vertically, then re-orient the camera to compose a horizontally framed image.

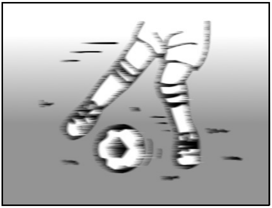


The following examples are some of the situations where the autofocus function may work, but not as desired.

- **When both near and far objects are present**
  Use the focus-lock function to lock the focus on an object at the same distance as the desired subject, then reposition the camera to compose the picture.



- **Fast-moving subjects**
  Use the focus-lock function to lock the focus on an object at the same distance as the desired subject, then reposition the camera to compose the picture.



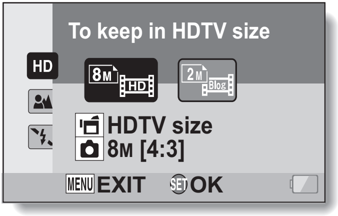
HINT

- Still images can be rotated when they are played back (pages 65 and 117).
- When the [ ] button is pressed halfway, the image in the monitor may waver vertically. This is the result of internal image processing and is not a malfunction. This wavering is not recorded and will not affect your images in any way.
- When the optical zoom is used or when the autofocus is operating, the image may appear to waver, but this is not a malfunction.

Select the recording size

The larger the image size (number of pixels), the better the image quality will be, but the file size will also be larger. Select the image quality that is correct for the intended purpose.

1 Display the SIMPLE Mode Recording Menu (page 49), select the recording size setting, and press the SET button.



- [8M HD]: The video clip size is 1920 × 1080 pixels, recorded at 60 fields/sec. The captured still image size is 3264 × 2448 (4:3) pixels.
- [2M Blog]: The video clip size is 640 × 480 pixels, recorded at 30 frames/sec. The captured still image size is 1600 × 1200 (4:3) pixels.

2 Select the desired video clip recording size, and press the SET button.

- This completes the recording size setting.

Select the focus setting

Select the focus range corresponding to the distance between the camera and the subject.

1 **Display the SIMPLE Mode Recording Menu (page 49), select the focus setting, and press the SET button.**



[icon]: The camera automatically focuses on the subject within a range of 50 cm (19.69 in.) to infinity (normal).

[icon]: The camera focuses on a subject within a range of 1 cm (0.39 in.) to 1.0 m (3.28 ft.) (super macro).

2 **Select the desired focus range, and press the SET button.**

- This completes the focus range setting.

Hints for taking pictures

Muting the operation sounds

- The audio guidance that sounds when you operate the camera can be muted (page 136).

Where are the image and audio files saved?

- All the image and sound files are recorded on the card installed in the camera.

Taking pictures in backlight conditions...

- When taking pictures with the light coming from behind the subject, due to the characteristics of the lens, ghost patterns (flare phenomenon) may appear in the captured image. In this situation, it is recommended that you avoid taking pictures with the subject lit from behind.

While the image files are being recorded...

- While the multi-indicator is flashing red, the image files are being written to the memory, during which time it is not possible to capture another image. Another image can be captured after the flashing red indicator turns off. However, even when the multi-indicator is flashing red, depending on the camera's internal memory remaining capacity, in some cases the next image can be captured about 2 seconds after shooting.

Checking the last image shot (instant review)

- After shooting a picture, you can immediately view it by pressing the SET button once.
- During instant review of a video clip, normal play, fast reverse play, reverse frame-by-frame play and pause are available (page 85).
- If you wish to delete the image (for a video clip, it must be in the pause or stop mode), toggle the SET button up to access the delete function.
- You can view other images while the instant review display is showing by toggling the SET button to the left or right.
- Cancel the instant review display by toggling the SET button down.

VIDEO CLIP RECORDING

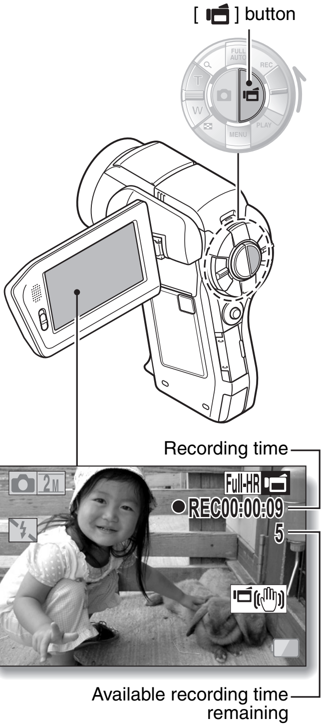
1 Turn on the camera (page 40), and set it to the recording mode (page 46).

2 Press the [ ] button.

- Recording begins.
- It is not necessary to keep the [ ] button pressed while recording.
- When the remaining recording time available for the currently recording clip becomes little, a countdown of the remaining recording time appears on the display.

3 End the recording.

- Press the [ ] button again to stop recording.



SHOOTING SINGLE SHOTS

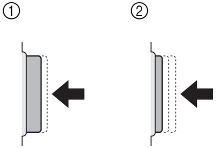
Capture a still image (single-shot).

1 **Turn on the camera (page 40), and set it to the recording mode (page 46).**

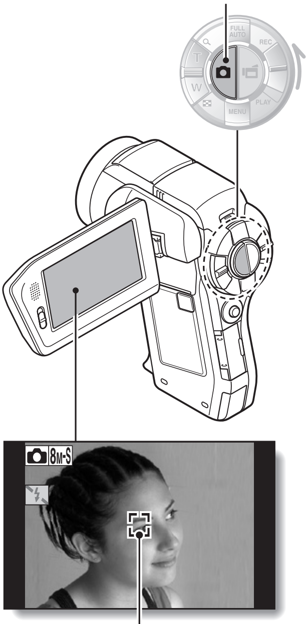
2 **Press the [ ] button.**

① **Press the [ ] button halfway.**
- The autofocus operates, and the image is focused (focus lock).

② **Continue to gently press the [ ] button all the way.**
- The shutter releases and the image is captured.
- You can view the captured image on the monitor by keeping the [ ] button depressed when you capture the image.



[ ] button



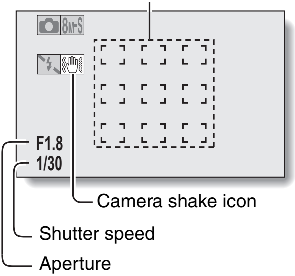
Target mark

HINT

Adjusting the monitor brightness

- While the Recording Screen is active, you can quickly access the screen for adjusting the brightness of the monitor by pressing the MENU button for at least 1 second.

What is the camera focusing on?



- A target mark ⌜⌟ on the monitor shows the area the camera is focusing on.
- The camera automatically determines the correct focus by measuring from 9 different focus points within the shooting area. If the target mark is at a position that is different from the point you wish to focus on, you can refocus, for example, by changing the shooting angle.
- The large target mark appears when the camera focuses on a wide area in the center of the screen.

The focus and exposure can be locked (in the NORMAL mode)

- By assigning an operation shortcut to the SET button (pages 138 and 142), you can set the autofocus or the exposure to a fixed setting. When the exposure setting is fixed, the [AE🔒] icon appears on the monitor; when the autofocus setting is fixed, the [AF🔒] icon appears on the monitor.
- When the focus range (pages 60 and 101) setting or scene select setting is changed, the focus lock is released.

The shutter speed and aperture are displayed (in the NORMAL mode)

- The shutter speed and aperture settings are shown on the Recording Screen. You can use them as a reference when shooting.

If the camera shake icon appears... (in the NORMAL mode)

- During still image shooting, if the shutter speed is slow and the possibility that the image may be blurred due to camera shake becomes high, the camera shake icon may appear on the monitor. In this case, use a tripod to stabilize the camera when shooting, or set the flash operation mode to automatic (pages 60 and 77).
- When shooting with the scene select function set to the fireworks mode, the camera shake icon always appears, but this is normal.

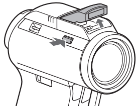
SHOOTING SINGLE SHOTS

Using the flash

The flash is not only used for photographing under dark conditions, but is also convenient for example when the subject is in shadow or lit from behind. Your camera is equipped with four flash modes: red-eye reduction, auto flash, forced flash, and no flash. Select the flash mode that is suitable for the shooting conditions. The flash is available only when shooting single-shot still images.

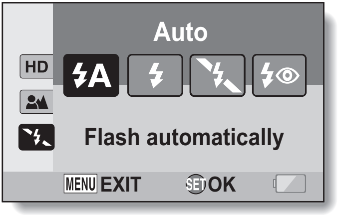
1 Press the [⚡] button to open the flash unit.

- The flash unit opens.



2 Display the SIMPLE Mode Recording Menu (page 49), select the flash setting, and press the SET button.

- The screen to select the flash operation appears.



[⚡A]: The camera detects the subject brightness and uses the flash only when necessary.

[⚡]: The flash operates with every image captured regardless of the conditions.

[no flash]: The flash does not operate even in dark situations.

[⚡◎]: The camera detects the subject brightness and uses the flash only when required. At this time the flash operates in a manner that reduces the red reflection (“red-eye”) in the subject’s eyes.

3 **Select the desired flash operation, and press the SET button.**
- This completes the flash operation setting.

4 **Press the [📷] button to take the picture.**

CAUTION

Do not touch the flash unit when shooting
- The flash unit becomes very hot and may cause a burn. Avoid touching the flash unit when shooting.

HINT
- The flash cannot be used during video clip recording.
- By assigning an operation shortcut to the SET button (pages 138 and 142), you can change the flash mode from the Recording Screen (in the NORMAL mode).

SHOOT A STILL IMAGE WHILE RECORDING A VIDEO CLIP

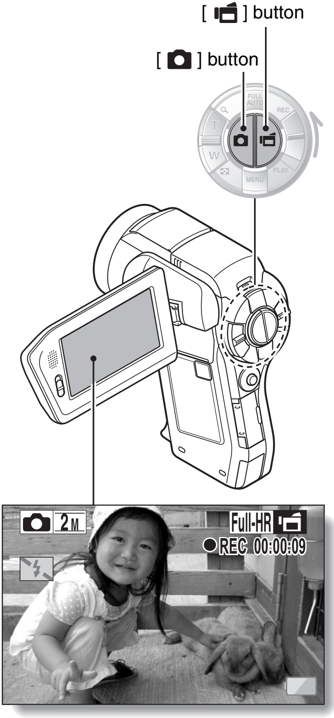
You can capture a still image (a single-shot) while recording a video clip.

1 **Turn on the camera (page 40), and set it to the recording mode (page 46).**

2 **Press the [ ] button.**

3 **When you see a scene you'd like to capture as a still image, press the [ ] button.**

4 **Press the [ ] button to end the video clip recording.**



HINT
- When shooting a still image while recording a video clip, the flash does not operate.
- The photo stabilizer (pages 62 and 103) is inoperative.
- When the remaining video recording time becomes approximately 50 seconds, it will no longer be possible to capture a still image while recording a video clip. The exact remaining recording time at which this occurs will differ depending on the subject and on the recording size (page 71), as well as on the video clip recording mode (page 96). If you intend to capture a still image while recording a video clip, it is suggested that you take note of the remaining video recording time.

About the recording size of still images
- The size of a still image captured during video clip recording depends on the video clip recording size.

Video clip recording size setting	Still image recording size
Full-HR Full-HD Full-SHQ	2M (16:9)
HD-SHQ	0.9M (16:9)
TV-SHQ	0.3M (4:3)

- It is not possible to capture a still image while recording a video clip at a high recording speed (WebSHR, WebUHR).
- It is not possible to capture sequential shots.

MACRO-PHOTOGRAPHY (ZOOM)

Your camera has two zoom functions: optical zoom and digital zoom.

1 **Point the camera lens at the subject.**

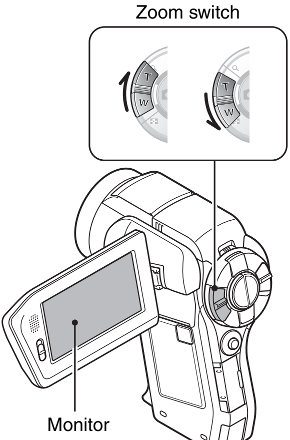
2 **Push the zoom switch toward [T/] or [W/] to compose the desired image.**

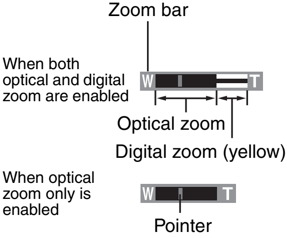
[T/]: Zoom in on the subject.
[W/]: Zoom out.

- When the zoom switch is pushed, the zoom bar appears on the monitor.
- When moving the optical zoom, push the zoom switch lightly to zoom slowly, and press more strongly to zoom quickly.
- When the optical zoom factor is at maximum, zooming stops temporarily. When the zoom switch is pushed toward the [T/] side again, the mode changes to the digital zoom mode and zooming continues.

3 **Take the picture.**

For video clip recording, see page 74.
For shooting single shots, see page 75.
For shooting sequential shots, see page 100.





HINT

About the “16x Advanced Zoom”

- During video clip recording, the “16x Advanced Zoom” function makes it possible to electronically magnify the image with no image degradation, and increase the magnification to a maximum 16x.

SHOOTING AND PLAYBACK WITH THE REMOTE CONTROL UNIT

The remote control sensor on your camera makes it possible to capture images and play them back using the supplied remote control unit.

1 **Prepare the remote control unit (page 30).**

2 **Turn the camera on, and set the REC/PLAY switch to REC or PLAY.**

- Set the REC/PLAY switch to REC for shooting, or to PLAY for playback.

3 **Aim the remote control unit at the camera's remote control sensor.**

- Open the monitor unit.

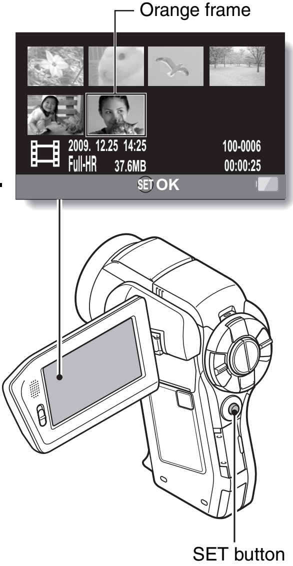
4 **Press the buttons on the remote control unit to operate the camera.**

PLAYING BACK VIDEO CLIPS AND STILL IMAGES

1 **Set the REC/PLAY switch to PLAY.**

2 **Select the image to play back.**

- Toggle the SET button left, right, up or down to move the orange frame to the file you wish to play back.
- The image information for the framed image is shown at the bottom of the screen.



3 **Press the SET button.**

- Playback begins.

<To return to the screen to select playback files>

During still image playback:
Toggle the SET button down.

During video clip playback:
Toggle the SET button down once to stop video clip playback, and toggle the SET button down again.

Video clip playback operation

To do this...		Do this
Normal forward playback		Press the SET button.
Stop playback		During playback, toggle the SET button down.
Pause		During playback, press the SET button or toggle the SET button up. During accelerated playback, toggle the SET button up.
To play back one image at a time (single-frame step)	During forward playback	After pausing playback, toggle the SET button to the right.
	During reverse playback	After pausing playback, toggle the SET button to the left.
Slow playback	During forward playback	After pausing playback, press and hold the SET button to the right.
	During reverse playback	After pausing playback, press and hold the SET button to the left.
To accelerate playback	Forward playback	During forward playback, toggle the SET button to the right. • The playback speed changes each time the SET button is toggled to the right, as follows: Normal playback → 2× → 5× → 10× → 15× Toggle the SET button to the left to resume normal playback speed.
	Reverse playback	During forward playback, toggle the SET button to the left. • The playback speed changes each time the SET button is toggled to the left, as follows: 15× ← 10× ← 5× Toggle the SET button to the right to resume normal playback speed.
Return to normal playback speed		Press the SET button.
Adjusting the volume		**Louder:** During playback, push the zoom switch toward the [T] side. **Softer:** During playback, push the zoom switch toward the [W] side.

HINT

If the [icon] appears on the playback Screen...

- The [icon] icon appears when playing back a file that was saved in segments (page 98). Although playback of these multiple files is continuous, there is a slight pause at the point where the files are joined.

How to save one frame from a video clip as a still image

1 **Play back the video clip. Pause the playback at the point you wish to "snap" a photo.**

2 **Press the [📷] button.**

- The screen to select the aspect ratio of the still image appears. Select the desired aspect ratio, and press the [📷] button. Note, however, that if the video clip aspect ratio is 4:3, you cannot select 16:9.
- It is not possible to save a frame from a video clip that was recorded in the W60UHR mode.

HINT

The file for a video clip is very large

- Therefore, be aware that if the video clip is uploaded to a computer to be played back, the computer may not be able to play back the video fast enough, making it appear jerky. (The video will always be displayed properly on the camera monitor or a television.)
- Depending on the card, shooting may end even before the possible shooting time indicated.

Display the video clip playback point

- During video clip playback, press the MENU button for at least 1 second to display a bar showing the current playback point in the video clip.
- Press the MENU button for about 1 second to cancel the bar.

CAUTION

During video clip playback, the sound of a motor is audible...

- During recording, the sound of the optical zoom movement or autofocus movement was recorded. This is not a malfunction.

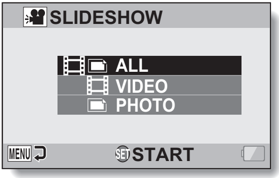
If no audio is heard...

- The audio is not played back when the video clip is played back in the frame-by-frame, fast playback or reverse playback mode.

SLIDESHOW PLAYBACK

You can play back files in succession with the “slideshow playback” feature.

1 Display the SIMPLE Mode Playback Menu (page 49), select the slideshow setting, and press the SET button.



: Play back all files.

: Play back video clips and audio files.

: Play back still image files.

2 Select the type of file to play back, and press the SET button.

- Slideshow playback begins.
- To stop slideshow playback, press the SET button or MENU button.

HINT

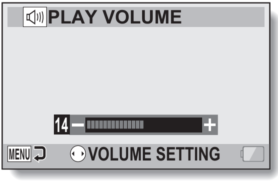
About the slideshow settings

- The slideshow settings can be changed from the NORMAL Mode Playback Menu (page 114).

PLAYBACK VOLUME

Adjust the playback volume for video clips and audio files.

1 Display the SIMPLE Mode Playback Menu (page 49), select the playback volume setting, and press the SET button.
- The volume control bar appears.



2 Toggle the SET button to the left or right to set the volume, and press the SET button.
- The playback volume is set, and the display returns to the SIMPLE Mode Playback Menu.

HINT

The volume can be adjusted during playback

- During video clip or audio file playback, if you push the zoom switch toward [T/] or [W/], the volume control bar will appear, allowing you to adjust the volume.

In the NORMAL mode

- When you select “PLAY VOLUME” from the NORMAL Mode Playback Menu and press the SET button, the volume control bar appears.

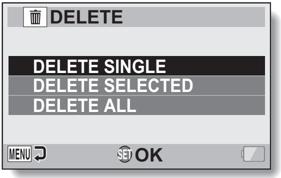
DELETING FILES

You can delete files if you no longer need them. You can delete single files, selected files or all the files at one time.

Delete single/delete all

1 **Display the SIMPLE Mode Playback Menu (page 49), select the delete setting, and press the SET button.**

DELETE SINGLE:
Deletes one file at a time.
DELETE SELECTED:
Deletes the selected files (page 91).
DELETE ALL:
Deletes all files.



2 **Select the desired delete mode, and press the SET button.**

- The Delete Confirmation Screen appears.

<DELETE SINGLE>

- Toggle the SET button to the left or right to select the file you wish to delete.
- There is no confirmation screen when deleting single files. Please make sure that the displayed image is one you wish to delete.

<DELETE ALL>

- Toggle the SET button to the left or right to confirm the files to delete.

3 Select “DELETE”, and press the SET button.

<DELETE SINGLE>

- The currently displayed file is deleted.
- To delete other files, select the files, select “DELETE” and press the SET button.

<DELETE ALL>

- The Delete Confirmation Screen again appears. To delete the files, select “YES”, and press the SET button. When file delete is completed, “No image” is shown.

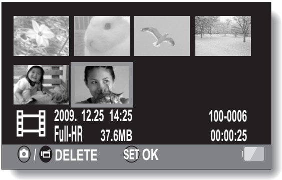
Delete selected

Delete selected files.

1 Display the SIMPLE Mode Playback Menu (page 49), select the delete setting, and press the SET button.

2 Select “DELETE SELECTED”, and press the SET button.

- The screen to select files to delete appears.



3 Select an image you wish to delete.

- Toggle the SET button left, right, up or down to move the orange frame to the file you wish to delete.

4 Press the SET button.

- The selected file is marked with the delete icon [🗑].
- Up to 100 files can be selected.
- To cancel a delete selection and remove the delete icon from a file, move the orange frame to the marked file and press the SET button.

5 Press the [📷 / 🎥] button.

- The Confirm Delete Screen appears.

6 Select "YES", and press the SET button.

- The selected files are deleted.

HINT

In the NORMAL mode

- When you select "DELETE" from the NORMAL Mode Playback Menu and press the SET button, the Delete Screen appears.

CAUTION

- Files that are protected from accidental delete cannot be deleted. To delete protected files, set the protect setting for the files to off (pages 65 and 115), and then follow the file delete procedure.

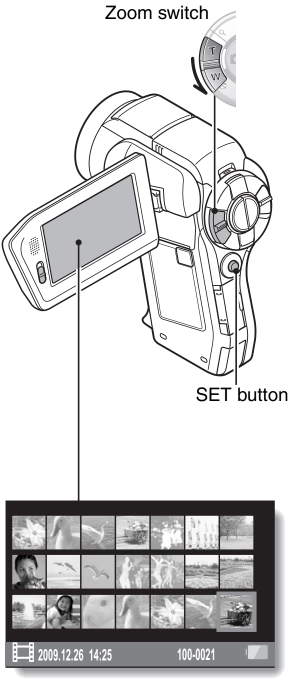
PLAYBACK MODES

21-image display playback

1 **Display the image you wish to play back.**

2 **Push the zoom switch toward the [W/▦] side.**
- The 21-image display appears.

3 **Select the image to play back.**
- Toggle the SET button up, down, left or right to move the orange frame to the desired image, and press the SET button.
- Instead of pressing the SET button, you can push the zoom switch toward the [T/🔍] side to show the 8-image display.
- If the zoom switch is pushed toward the [W/▦] side while the 21-image display is shown, the display changes to the screen to select the playback folder (page 94).
- It is not possible to perform the file delete or file protect settings on the 21-image display.



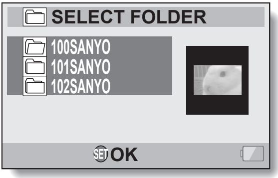
Selecting the playback folder

If the card contains multiple folders, you can select from which folder you would like to play back.

1 **Display the Playback Screen.**

2 **Push the zoom switch toward the [W/⊞] side twice.**

- The screen to select the playback folder appears.
- If the zoom switch is pushed toward the [T/🔍] side, the camera changes to the 21-image display (page 93).



3 **Toggle the SET button up or down to move the orange frame to the desired folder, and press the SET button.**

- The files in the selected folder are displayed in the Playback Screen.

HINT

In the NORMAL mode

- When you select "SELECT FOLDER" from the NORMAL Mode Playback Menu and press the SET button, the screen to select the playback folder appears.

SIMPLE/PLAYBACK

Magnifying (zooming in) the image

1 Display the image that you want to magnify.

- For a video clip, pause playback at the place you want to magnify.

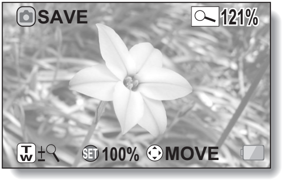
2 Push the zoom switch toward the [T/] side once.

- Magnification is enabled.
- The image is magnified, and the central portion of image is displayed.
- Toggle the SET button to view different parts of the magnified image.

To magnify:
Magnification increases each time the zoom switch is pushed toward the [T/] side.

To return to normal size:
Magnification decreases each time the zoom switch is pushed toward the [W/] side.

- Press the SET button to return to the normal (100%) view.



HINT

The magnified portion of the image can be saved as a separate image

- Press the [ ] button. The magnified portion is saved as a new still image.

RECORDING MENU 1

Video setting

You can record video clips in either the HD mode (16:9 horizontal to vertical aspect ratio) or the SD mode (4:3 aspect ratio). In addition, the higher the frame rate number, the smoother playback will be. However, as with the recording size, the file size is also proportionately larger, using up more memory. This menu is also used when making audio recordings.

CAUTION

When editing video clips...

- In order for video clips to be joined, they must have been photographed in the same mode.
- Video clips that were photographed in different modes cannot be joined.

Restrictions when [SHR] or [UHR] is set

- When the camera is connected to a TV, the image is shown on the camera monitor in the recording mode, and on the TV in the playback mode.
- When the [ ] button is pressed, a video clip is recorded for about 10 seconds. Recording is discontinued when the [ ] button is pressed again.
- The following recording functions are not available.
  Capturing a still image during video clip recording
  Zoom
  Image stabilizer
  Scene select (fixed at [AUTO])
  Manual exposure
  Face chaser recording
  High sensitivity mode recording
  Photo wide-D range recording
  Noise reduction
- You cannot record when the possible recording time is less than about 12 seconds.
- If the AE lock setting is active, it is canceled when the [SHR] or [UHR] setting is set.

NORMAL/SHOOTING

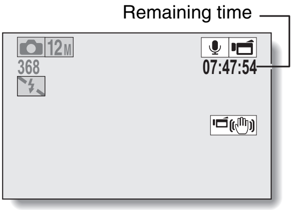
RECORDING MENU 1

Audio recording

■ Audio recording

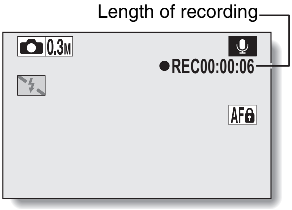
1 Select [🎙], and press the SET button.

- The audio recording mode is enabled.
- The menu display is canceled if the MENU button is pressed.



2 Press the [🎥] button.

- Audio recording begins. During recording, 🎙 appears in the monitor. It is not necessary to continue pressing the [🎥] button while recording.



3 End the recording.

- Press the [🎥] button again to stop recording.

HINT

You can capture a still image during an audio recording

- Press the [◘] button during audio recording to capture a 0.3M still image.

About files saved in segments

- If the continuous recording time of a voice memo exceeds about 13 hours, the recorded file is saved once, and the recording continues in a new file. When recording a video clip whose file size exceeds 4 GB, the recorded file is saved once, and the recording continues in a new file. (These 4 GB segments are automatically created. The recording session continues until you stop recording, but video clip or voice memo recording is temporarily interrupted while the file is being saved.)

■ Audio playback

1 Select an audio file, and press the SET button.

- Playback begins.

To do this...		Do this
Normal playback	Start playback	Press the SET button.
	Pause	Press the SET button. Toggle the SET button up.
	Stop playback	Toggle the SET button down.
Fast forward/ fast reverse	Fast forward	During playback, toggle the SET button to the right. Each time the SET button is toggled to the right, the speed increases. If the SET button is toggled to the left during fast forward, the speed decreases.
	Fast reverse	During playback, toggle the SET button to the left. Each time the SET button is toggled to the left, the speed increases. If the SET button is toggled to the right during fast reverse, the speed decreases.
	Pause	Toggle the SET button up.
	Return to normal playback	Press the SET button.
Volume adjustment	Louder	During playback, push the zoom switch toward the [T/] side.
	Softer	During playback, push the zoom switch toward the [W/] side.

CAUTION

If no audio is heard...

- The audio is not played back when the audio recording is played back in the fast playback or fast reverse mode.

Still image setting

For still images, you can select either the 4:3 or 16:9 horizontal to vertical aspect ratio. This menu is also used for shooting sequential shots.

Sequential shots

1 **Select 8M or 4M, and press the SET button.**

- The camera changes to the sequential shots mode.

2 **Press the [ ] button.**

- Shooting begins. Shooting continues as long as the [ ] button is kept pressed.

HINT

What is the maximum number of images in a sequential shots sequence?

8M: 9 images (6 fps)
4M: 15 images (12 fps)

- If you continue shooting even after the maximum number of images has been captured, recording does not stop.
- If you continue shooting after the maximum number of images has been captured, subsequent captured images will overwrite the sequence already captured, beginning from the first image in the sequence.

About the focus when shooting sequential shots

- When sequential shots are captured, the autofocus operates when the [ ] button is pressed halfway, fixing the focus.

Can the flash be used?

- The flash does not operate when shooting sequential shots.

Did the angle of view change?

- When shooting sequential shots, the angle of view relative to that of still image shooting may change.
- At the 4M setting, the images are captured with an enlarged angle of view in comparison to other recording modes.

About the PHOTO NR (page 138) setting

- During sequential shots shooting, the PHOTO NR setting automatically turns OFF.

Scene select setting

You can select from various preset settings (aperture, shutter speed, etc.) for specific shooting conditions.

HINT

- To return to normal photography, select [AUTO] from the scene select menu, and press the SET button.
- When capturing images using the lamp [lamp icon], fireworks [fireworks icon] or night view portrait [night view portrait icon] setting, use a tripod or other method to stabilize the camera.
- If the recording size is set to [Web SHR] or [Web UHR], the scene select function will be fixed at [AUTO].
- In the sequential shots mode, it is not possible to select night view portrait [night view portrait icon], fireworks [fireworks icon], or lamp [lamp icon].
- A table showing the limitations for settings corresponding to scene select icons other than [AUTO] is on page 188.

Filter setting

The filter feature changes image characteristics such as color tones, to apply unique effects to the photographed image.

HINT

- To return to normal photography, select [filter off icon] from the filter menu, and press the SET button.
- A table showing the limitations for settings corresponding to filter icons other than [filter off icon] is on page 189.

Self-timer setting

By assigning an operation shortcut to the SET button (pages 138 and 142), you can set the self-timer from the Recording Screen.

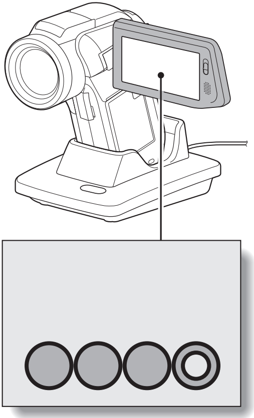
HINT

To pause or cancel the self-timer function...

- If the [📷] button or [🎥] button is pressed again before the shutter is released, the self-timer countdown temporarily stops. Press the [📷] button or [🎥] button one more time to restart the self-timer.
- To cancel self-timer photography, select the ⏲ icon from the self-timer menu, and press the SET button.
- The self-timer is automatically reset to off ⏲ after the power save mode is activated and the camera turned off.

When ⏲10 is selected...

- When the [📷] button or [🎥] button is pressed, the multi-indicator will blink for about 10 seconds, and then the image is captured. Also, 4 seconds before the shutter releases, the indication shown in the illustration appears on the monitor.



If you swivel the monitor unit to its farthest position, the image on the monitor will be inverted.

RECORDING MENU 2

Motion compensation (image stabilizer) setting

Your camera can minimize a jittery picture by compensating for unintentional hand motion.

HINT

If the motion compensation does not seem to be working...

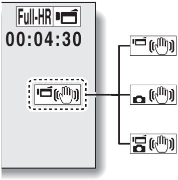
- Due to the mechanical characteristics of this function, it may not be possible for the camera to compensate for violent motion.
- If the digital zoom (page 81) is being used, the large magnification factor may make it difficult for the motion compensation function to work correctly.
- When the scene select function is set to night view portrait or lamp, the motion compensation effect may be insignificant.

Can't set the "photo stabilizer" setting?

- The photo stabilizer is automatically turned off after any of the following operations.
  - Pressing the flash button [ ] to open the flash unit.
  - Setting the exposure to S, A or M (pages 64 and 108).
  - Setting the photo wide D-range setting (pages 64 and 110) to "ON".
  - Setting the still image NR (noise reduction) setting (page 138) to "ON".
  - Starting video clip recording.
  - Setting the camera to the sequential shots mode (pages 60 and 100).

When motion compensation is enabled,

- The following icons are shown on the monitor:



The video stabilizer is active

The photo stabilizer is active

Both the video stabilizer and the photo stabilizer are active

Did the scene select setting change?

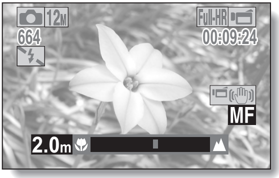
- When the photo stabilizer is set to, if the scene select setting is, it will automatically change to AUTO.

Focus range setting

How to use the manual focus

1 Select [MF], and press the SET button.

- The focus distance adjustment bar appears.



2 Toggle the SET button to the left or right to adjust the focus distance, and press the SET button.

- The focus distance is set, and you are returned to the Recording Screen.

HINT

About the focus range

- The focus distance indication shows the distance between the center of the lens and the subject.
- In some cases there may be a slight variance between the distance (numerical figure) you set in the manual focus mode and the actual distance.

About zoom movement when using the manual focus

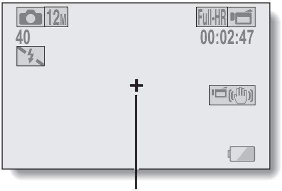
- If the focus distance is set to 70 cm (27.56 in.) or less, the zoom changes to the largest setting that is suitable for that focus distance.
- When the focus distance is set to 70 cm (27.56 in.) or less, the zoom will function only within the range at which the image is focused.

About the super macro mode

- When the focus range is set to super macro [super macro icon], the zoom is temporarily set to the wide end.
- By assigning an operation shortcut to the SET button (pages 138 and 142), you can change the focus range setting from the Recording Screen.

Focus mode setting

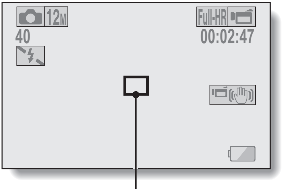
When the spot focus setting is selected, the focus mark + appears in the center of the monitor.



Focus mark

Light-measuring mode setting

When spot light-measuring is selected, the light-measuring spot mark □ appears in the center of the monitor.



Light-measuring spot mark

ISO sensitivity setting

With the initial settings, the ISO sensitivity is automatically set according to the brightness of the subject. However, the ISO sensitivity can be set to a fixed setting.

HINT

- At the AUTO setting, the ISO sensitivity is set automatically (video clip recording: ISO 50 to 800; still image shooting: ISO 50 to 200).
- When the ISO sensitivity is set to 3200, video clips, as well as still images captured during video clip recording, will be recorded at ISO 1600.
- By setting a higher ISO sensitivity, you can set faster shutter speeds and capture images in darker locations, but noise in the captured images may increase or the images may be irregular.
- By assigning an operation shortcut to the SET button (pages 138 and 142), you can change the ISO setting from the Recording Screen.

CAUTION

Does the image appear to flicker when recording a video clip?

- If recording a video clip under fluorescent lights with the ISO sensitivity set to 400 or higher, a noticeable flicker may appear in the image.

RECORDING MENU 3

White balance setting

This camera automatically adjusts the white balance under most lighting conditions. However, if you want to specify the lighting conditions or change the overall tone of the image, the white balance can be manually set.

How to use the one push setting

1 Select the [one push] icon.

2 Fill the entire screen with a plain white card (or piece of paper, etc.), and press the SET button.

- This completes the white balance setting.

HINT

To cancel the white balance setting

- Select AWB, and then press the SET button.

Exposure setting

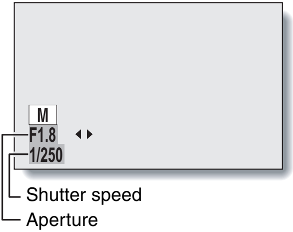
The shutter speed and aperture size can be set individually.

1 Select the desired icon from the exposure menu, and press the SET button.

<If [S], [A] or [M] was selected>

① Toggle the SET button up or down to select aperture value or shutter speed.

② Toggle the SET button left or right to change the setting for the selected parameter.



2 Press the SET button.

- This completes the exposure setting.

HINT

- To prevent the effects of camera shake at slow shutter speeds, it is recommended to use a tripod or other method to stabilize the camera.
- A slow shutter speed may be useful for photographing in a darker environment, but noise in the image may be increased.
- To minimize noise in the image, complete the noise reduction setting (page 138).
- The exposure setting automatically becomes [P] if the scene select function is active.
- In the sequential shots mode, the shutter speed is faster than 1/30 sec.
- Even if the shutter speed is set to slower than 1/29 sec., the shutter speed during video clip recording is 1/30 sec.
- If the exposure setting is set to [S], [A] or [M], by assigning an operation shortcut to the SET button (pages 138 and 142), you can select the [S], [A] or [M] exposure setting from the Recording Screen.

Face chaser setting

As you record, the face chaser detects the subject's face, and adjusts the brightness and focus in a way that produces a clear and bright photo of the subject's face.

HINT

When the face chaser is set to ON...

- Each face in the Recording Screen is marked with a green frame.
- Faces that are in focus are marked with a double green frame.
- When shooting begins, the frames marking the faces that are in focus change to orange.
- If the scene select function setting was fireworks [fireworks icon] or landscape [landscape icon], it automatically changes to AUTO.
- The light measuring mode changes to multi-section light measuring.
- When you play back an image that was captured using the face chaser function and magnify it, the magnified image will be centered on the face(s) that were focused on.

CAUTION

- The face chaser function does not work while the digital zoom is being used.
- The face chaser function does not work when zooming in or out.
- The face chaser function may not work when the subject's face in the monitor is relatively small or appears dark.

Photo wide D-range setting

By using the photo wide D-range feature, even in an image comprised of both bright and dark subjects, all the subjects will be captured at a natural brightness level. For example, when a strong backlight is created, as can occur when photographing in bright surroundings, a subject in a bright background appears completely white. Furthermore, the details of dark areas created by the shadows of a backlight are normally obscured in blackness. Shooting with the photo wide D-range function smoothly adjusts the brightness levels from light areas to dark areas.

HINT

Other settings during photo wide D-range shooting

- When the photo wide D-range is set to “ON”, the following settings automatically change as indicated.
  Flash (page 60): Disabled (no flash)
  Exposure (pages 64 and 108): P
  Photo stabilizer (page 103):
  Scene select fireworks (page 101): AUTO
  When sequential shots is active (page 100): 8M-S
  Noise reduction (page 138): “PHOTO NR” is “OFF”
- During video clip recording, the photo wide D-range is automatically switched to “OFF”.
- The field of view of captured images will appear slightly narrow.

CAUTION

- When the scene select function is set to night view portrait or lamp, the photo wide D-range effect may be insignificant.
- The photo wide D-range function does not work when the shutter speed is slower than 1/60.
- The photo wide D-range effect may be insignificant if you are shooting in an extremely bright or extremely dark environment.
- Note that the exposure time during photo wide D-range shooting is comparatively longer than for normal shooting.
- When there are smear or flare effects in the image, or when it is misty, shooting with the photo wide D-range function enabled may in some cases produce an unnatural appearing image.
- Depending on the surrounding conditions, for example, when the light sources of light and dark areas are different, an unnatural appearing image may be produced.
- Image processing after shooting may take some time.

High sensitivity mode setting

When you shoot in the high sensitivity mode, the captured image appears even brighter than that specified by the ISO sensitivity and exposure compensation settings.

CAUTION

Limitations of the high sensitivity mode

- When the shutter speed is reduced to create a bright image, video clip motion will appear uneven during playback.
- When shooting in a dark environment, the autofocus and auto exposure may not function effectively.
- If the video clip setting is WebSHR or WebUHR, it changes to Full-HD.

Digital zoom setting

This setting allows you to specify whether or not the digital zoom is enabled during zoom shooting.

HINT

- The digital zoom does not function in the following situation:
  When the still image mode is set to 12M.

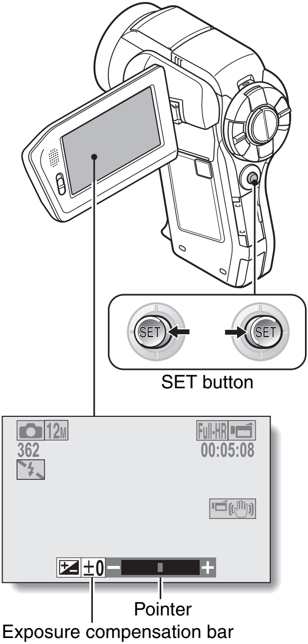
Exposure compensation

By assigning the exposure compensation operation shortcut to the SET button (pages 138 and 142), you can make the image lighter or darker when capturing images.

1 **Assign the operation shortcut to the SET button (pages 138 and 142).**

2 **Toggle the SET button in the direction for which the operation shortcut was assigned.**
- The exposure compensation bar appears.

3 **Toggle the SET button to the left or right to adjust the exposure.**
- The exposure compensation numerical value is shown at the left end of the exposure compensation bar.
- The exposure compensation can be set to a value from –1.8 EV to +1.8 EV.
- The exposure compensation bar is canceled when the MENU button or the SET button is pressed.



HINT

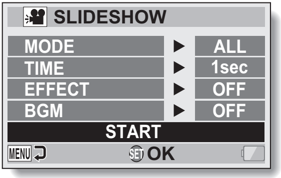
The exposure compensation setting is canceled in the following cases:
- When the pointer is set to the center position.
- When the camera is set to the playback mode.
- After the power is turned off.
- When the camera is set to the standby mode.

PLAYBACK MENU 1

Slideshow settings

Specify the settings for playing back files continuously in a “slideshow” format. In a slideshow of still images, you can set the transition time, transition effects and BGM.

Changing a setting



1 **Select the item you wish to change, and press the SET button.**

2 **Toggle the SET button up or down to change the setting.**

3 **Press the SET button.**

Begin the slideshow

1 **Select “START” and press the SET button.**
- Slideshow playback begins.
- To stop slideshow playback, press the SET button or MENU button.

HINT
BGM for video clips?
- When video clips are played back in a slideshow, the recorded audio track is played back; the BGM is not played.

PLAYBACK MENU 1

File protect setting

Prevent accidental erasure of image and audio files.

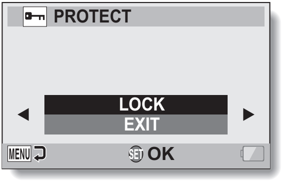
Protect files one by one

1 Display the file that you want to protect from accidental erasure, and display the NORMAL Mode Playback Menu (page 49).

2 Select "PROTECT" and press the SET button.

3 Select "PROTECT SINGLE" and press the SET button.

- "LOCK" appears.
- If the protect mode has already been enabled for the file, then "UNLOCK" appears.



4 Toggle the SET button up or down to select "LOCK", and press the SET button.

- The protect mode is set for the file.
- The protect mark indicates that the file is locked.

CAUTION

- Even if the protect mode is set for certain files, they will be deleted if the card is reformatted.

HINT

To select a different image in steps 2 and 3...

- Toggle the SET button to the left or right.

To cancel the protect mode for a file...

- Display the desired file and repeat steps **1** to **3**. The protect mark will disappear and the protect mode is canceled.

Protect selected files

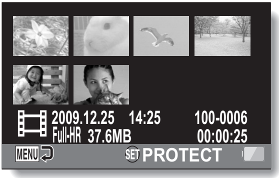
Select multiple files to protect.

1 **Display the NORMAL Mode Playback Menu (page 49).**

2 **Select "PROTECT" and press the SET button.**

3 **Select "PROTECT SELECTED" and press the SET button.**

- Toggle the SET button left, right, up or down to move the orange frame to the file you wish to protect.



4 **Press the SET button.**

- The selected file is marked with the protect icon [⊶].
- To cancel a protect selection and remove the protect icon from a file, move the orange frame to the marked file and press the SET button.

Resize

A captured image can be resized to a smaller size and saved as a separate image.

HINT

Why can't the image be resized?

- An image can be resized only to a smaller (or the same) size, not to a larger size.

Rotate

Captured still images can be rotated to the correct orientation for viewing.

HINT

- An image for which the protect mode has been enabled cannot be rotated. To rotate a protected image, cancel the protect mode before beginning the rotate image procedure (pages 65 and 115).

PLAYBACK MENU 2

Correcting the contrast

Correct the contrast in a photo.

HINT

If the "Contrast correction not successful" message appears...

- The camera was not able to successfully repair the image.
- The correction function works to automatically edit flaws that the camera detects in captured images. In some cases, the camera may fail to correct a flaw.

Concerning the date and time information for the saved image

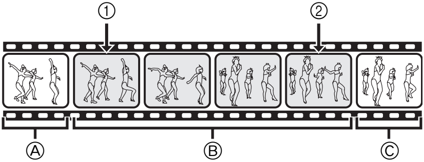
- When an image is corrected and saved, the recorded date and time of capture (Exif information) remains unchanged from the original image. However, the file date shown on the computer changes to the date and time the image was revised.

Editing video clips

You can trim away unwanted portions from a video clip and save it as a new video clip (video clip cutting [extracting]). You can also join video clips together and save them as one separate clip ("joining").

Procedure to cut (extract) a portion of a video clip

Specify the frames (①, ②) where the video clip is to be cut.



▼

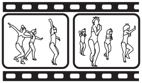
Extract the specified portion.

[Two ways to cut the video clip]

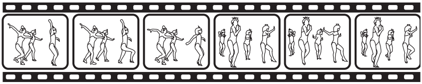
- Trim away portions Ⓐ and Ⓒ, and save portion Ⓑ. ••



- Delete portion Ⓑ, and join portions Ⓐ and Ⓒ. ••



- The original video clip is not affected. ••



(You can also choose to erase the original video clip when the new clip is saved.)

Procedure to join video clips

Specify the video clip that will come first.



▼

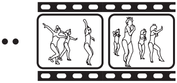
Specify the video clip that you wish to append (join).



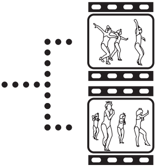
▼

Join the video clips.

- The video clips are joined.



- The original video clips are not affected. (You can also choose to erase the original video clips when the new clip is saved.)



CAUTION

Caution when editing video clips

- When editing video clips, do not move the REC/PLAY switch. If you move the REC/PLAY switch while editing video clips, not only will the editing not be properly completed, but the original video clip may also be erased.
- As the number or size of the video clips increases, the card memory may become full, making it impossible to edit or save the video clips. In this case, you will need to free some of the memory on the card by deleting files that are no longer necessary (pages 65 and 90).

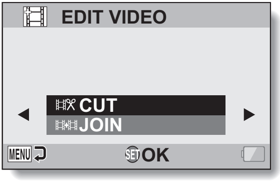
Regarding the capture date of the saved files

- The capture date of edited images changes to the date that the files are saved.

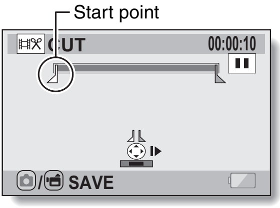
Video clip cutting (extracting)

1 **Display the video clip from which you wish to extract a segment.**

2 **Display the NORMAL Mode Playback Menu (page 49), select "EDIT VIDEO", and press the SET button.**



3 **Select "CUT" and press the SET button.**
- The Cutting Screen appears.



NORMAL/PLAYBACK

4 **Specify the start point of the extract.**

- Use the procedure below to specify the frame from which the video clip extract will start.
- Play the video clip until approximately the desired point, pause the video clip, then play the video clip one frame at a time, stopping at the start point of the extract. This will be the first frame of the extract.
- If the start point of the video clip is also the start point of the extract, proceed to step **5**.

<Procedure>

Play:
After pausing playback, press and hold the SET button to the right for about 2 seconds for forward playback, or to the left for reverse playback.

Pause:
During playback, press the SET button.

Accelerated playback:
During playback, toggle the SET button to the left or right to change the playback speed.

Single frame:
After pausing playback, toggle the SET button to the right to move forward one frame, or to the left to move back one frame.

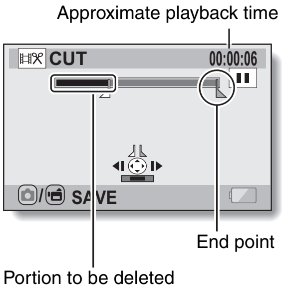
5 Toggle the SET button up.

- The start point of the video clip extract is set, and the screen to specify the end point appears.
- Specify the end point of the extract by following the same procedure as in step **4**.

<When joining the first and latter portions>

① Toggle the SET button down.
  - Each time the SET button is toggled down, the sections to delete and the sections to save are reversed.

② Specify the end point of the extract. The frame following the end point of the extract will be the start point of the latter portion to be joined.



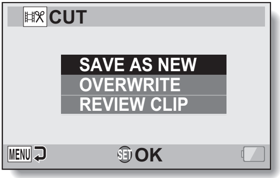
6 Press the [📷 / 🎥] button.

- A screen appears for you to select either to save the edited video clip as a new (separate) file, or to delete the original video clip and replace it with the edited video clip.

  SAVE AS NEW:
  The edited video clip will be saved as a new file. The original video clip remains unchanged.

  OVERWRITE:
  The original video clip will be deleted. Only the edited video clip will be saved.

  REVIEW CLIP:
  Play back the edited video clip before saving it.



7 Select the desired option, and press the SET button.

- Editing starts.
- When editing ends, you are returned to the NORMAL Mode Playback Menu.

HINT

- You will not be able to overwrite the file if the original file is protected.
- If the “Card full” message appears, you will need to free some of the memory by deleting files that you do not need to keep.

CAUTION

Warning concerning the battery pack remaining charge

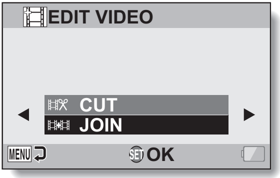
- During the editing of lengthy video clips, the time to process the large amount of data can become quite long. To avoid problems caused by the battery pack becoming depleted in the middle of video clip editing, before starting to edit be sure that a sufficiently charged battery pack is installed in the camera, or connect the AC adaptor.
- It is recommended that a computer be used to edit long video clips.

Joining video clips

CAUTION

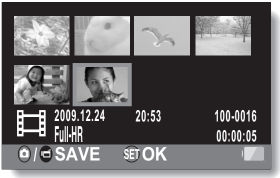
- Video clips that were photographed in different modes cannot be joined.

1 **Display the NORMAL Mode Playback Menu (page 49), select "EDIT VIDEO", and press the SET button.**



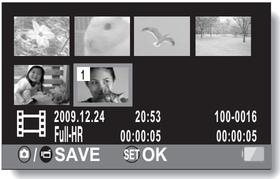
2 **Select "JOIN" and press the SET button.**

- The 8-image playback display for video clips appears.



3 **Move the orange frame to the video clip you wish to join, and press the SET button.**

- The specified video clip is labeled with a number.
- Up to 9 video clips can be selected.
- To cancel a selection and remove the number label from a video clip, select the video clip and press the SET button.



4 Press the [📷 / 🎥] button.

- A screen appears for you to select either to save the joined video clip as a new (separate) file, or to delete the original video clips and replace them with the joined video clip.



SAVE AS NEW:
The joined video clip will be saved as a new file. The original video clips remain unchanged.
OVERWRITE:
The original video clips will be deleted. Only the joined video clip will be saved.
REVIEW CLIP:
Play back the joined video clip before saving it.

5 Select the desired option, and press the SET button.

- Editing starts.
- When editing ends, you are returned to the NORMAL Mode Playback Menu.

HINT

- If the file size of the video clip after editing exceeds 4 GB, it is not possible to either “SAVE AS NEW” or “OVERWRITE”.
- You will not be able to overwrite the file if the original file is protected. If you want it to be erased, you will need to first remove the protection (pages 65 and 115).
- If the “Card full” message appears, you will need to free some of the memory by deleting files that you do not need to keep.

CAUTION

Warning concerning the battery pack remaining charge

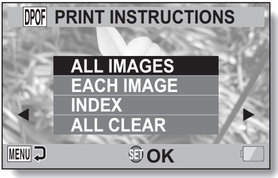
- During the editing of lengthy video clips, the time to process the large amount of data can become quite long. To avoid problems caused by the battery pack becoming depleted in the middle of video clip editing, before starting to edit be sure that a sufficiently charged battery pack is installed in the camera, or connect the AC adaptor.
- It is recommended that a computer be used to edit long video clips.

Printing instructions

In addition to using your printer to print out still images captured with your camera, as with conventional film, you can have prints made at shops offering digital print services. Moreover, this camera is DPOF-compatible, so you can use the camera to specify the number of prints, whether or not the date is displayed on the print, and also to request an index print.

Display the Printing Instructions Screen

1 Display the NORMAL Mode Playback Menu (page 49), select "PRINT INSTRUCTIONS", and press the SET button.



ALL IMAGES:
The specified printing instructions apply to all the images.
EACH IMAGE:
The printing instructions are specified for each individual image.
INDEX:
All the still images are printed as miniature images (thumbnail images), several images on one print.
ALL CLEAR:
Clear all the printing instructions. This cannot be selected if no printing instructions have been specified for the image.

HINT

Printing a single frame from a video clip

- To print with a printer or have the digital print service shop print out a still image from a video clip, you must first save it (extract still) as a still image (page 87).

About the DPOF format

- DPOF (Digital Print Order Format) is a print order format. You can connect your camera to a DPOF-compatible printer to produce your prints. You can also set the printing instructions for the desired images, and then have the requested images printed automatically (page 164).

About the finished prints

- Rotated images (pages 65 and 117) will be printed in their original orientation.
- The quality of the print output will differ depending on the print service and printer used.

Specifying date imprinting and print quantities

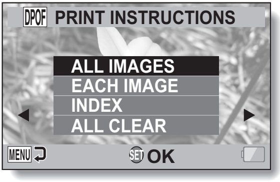
You can specify printing instructions for each individual image (EACH IMAGE), or apply the printing instructions to all the images (ALL IMAGES).

1 Display the Printing Instructions Screen (page 129).

2 Select "ALL IMAGES" or "EACH IMAGE".

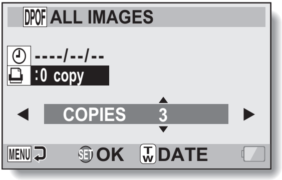
ALL IMAGES:
The printing instructions are applied to all the images.

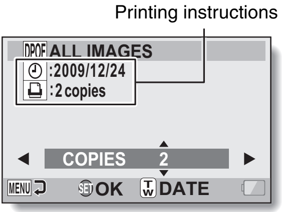
EACH IMAGE:
The printing instructions are applied only to the image currently displayed.



3 **Press the SET button.**

- The Date/Copies Print Screen appears.
- If “EACH IMAGE” was selected, toggle the SET button to the left or right to display the desired image to print.
- The printing instructions that are currently active for the displayed image are shown. You can toggle the SET button to the left or right to confirm the printing instructions for each image.





<Completed printing instructions>

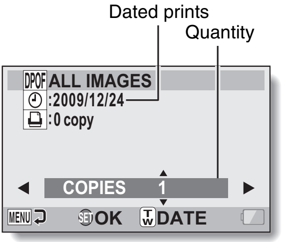
4 Specify whether the date is displayed on the print, and the number of prints.

<Specify the number of prints>

- Toggle the SET button up or down.
  - The quantity indication changes.
  - Display the desired number of prints.
- Press the SET button.
  - The number of prints is set.

<Specify dated prints>

- From the screen on which the number of prints is set, press the zoom switch.
- Press the SET button.



5 Press the MENU button.

- The printing instructions for the requested print quantities and dated prints are stored.
- The display returns to the Printing Instructions Screen.

HINT

Can't specify dated prints?

- Dated prints are not possible for photos that were captured before the camera's date and time setting was completed.

Index print

Printing out many small images on one sheet is called an "index print". This is convenient for use as a list of the images you have captured.

FILE INFO DISPLAY

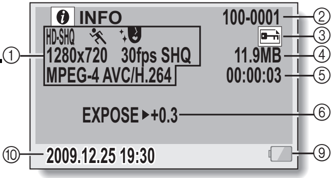
On the Information Screen you can check what the settings were when a file was recorded with your camera.

1 Display the desired file on the camera monitor.

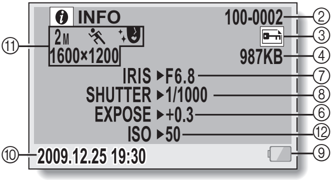
2 Press the MENU button for at least 1 second.

- The Information Screen appears.
- If the MENU button is pressed again, the Information Screen is canceled.

① **Video clip mode settings**
② **Image or sound number**
③ **Protect setting**
④ **File size**
⑤ **Shooting or recording time**
⑥ **Exposure compensation setting**
⑦ **Aperture value**
⑧ **Shutter speed**
⑨ **Remaining battery charge**
⑩ **Date and time of image**
⑪ **Still image resolution settings**
⑫ **ISO sensitivity setting**



<Video clip file>



<Still image file>

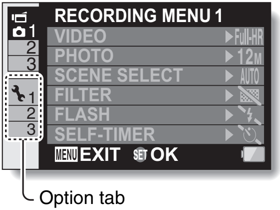


<Audio file>

DISPLAY THE OPTION SETTING MENU

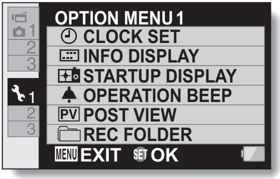
The camera settings are executed via the Option Setting Menu.

1 Turn on the camera, set it to the NORMAL mode, and press the MENU button.



2 Select an Option tab (1, 2 or 3), and press the SET button.

- The Option Setting Menu appears.
- If you toggle the SET button to the right, the screen to select a setting to change appears.



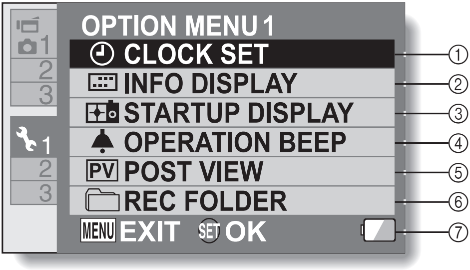
To access a Setting Screen

3 Toggle the SET button up or down to select the item you wish to set, and press the SET button.

- The Setting Screen for the selected item appears.
- To return to the Menu Screen, press the MENU button.

INTRODUCTION TO THE OPTION SETTING MENU

Tab 1



① **CLOCK SET setting (page 43)**
- Set the camera's clock.

② **INFO DISPLAY setting**
- Specify the information to display on the playback screen.

SHOW ALL:
Display the capture date and playback time (video clips).

DATE & TIME:
Display the capture date.

COUNTER:
Display the playback time when playing back a video clip.

OFF:
Do not display the capture date or playback time.

③ **STARTUP DISPLAY setting**
- Select the display that appears on the monitor when the camera is turned on in the recording mode.

DATE & TIME:
The camera's date and time setting is shown.

Xacti:
The Xacti logo is shown.

OFF:
No startup display.

④ **OPERATION BEEP setting**
- Settings for the camera's operation sounds, audio guide and volume.

TURN ON/OFF:
Mute or enable the sounds when the camera is turned on or off.

SHUTTER:
Select the sound that is produced when the [📷] button is pressed.

KEY SW:
Select the sound that is produced when the SET button, MENU button, etc. are pressed.

AUDIO GUIDE:
Mute or enable the camera's audio help guide.

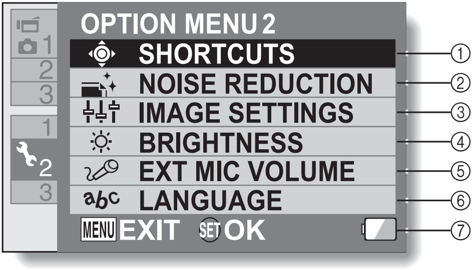
OPERATION VOL:
Adjust the volume of the operation sounds.

⑤ **POST VIEW setting**
- Specify the duration that the captured image is shown on the monitor (post-view) after the [📷] button is pressed.

⑥ **REC FOLDER setting (page 141)**

⑦ **Remaining battery charge display (page 155)**

Tab 2


OPTION MENU 2
SHORTCUTS
NOISE REDUCTION
IMAGE SETTINGS
BRIGHTNESS
EXT MIC VOLUME
LANGUAGE
MENU EXIT
SET OK
①
②
③
④
⑤
⑥
⑦

① **SHORTCUTS setting (page 142)**

② **NOISE REDUCTION setting**
- Compared to normal shooting, when the PHOTO NR function is ON, the image processing time after shooting a still image is slightly longer.

VIDEO NR:
Turn ON/OFF the image noise reduction function during video clip recording.

PHOTO NR:
Turn ON/OFF the image noise reduction function during still image shooting.
- If the photo stabilizer and/or photo Wide-D range setting is ON, the PHOTO NR setting is automatically turned OFF. In addition, it is turned off during sequential shots shooting.

WIND SOUND NR:
Turn ON/OFF the wind noise reduction function during video clip/audio recording.

③ **Image quality setting**
- Set the vividness and sharpness of the images.

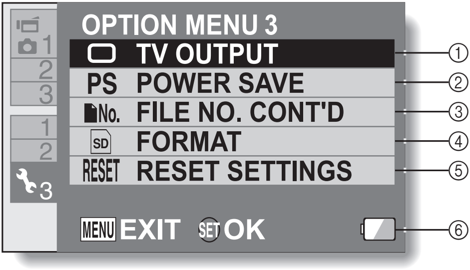
④ **BRIGHTNESS setting**
- Adjust the brightness of the camera's monitor display.

⑤ **EXT MIC VOLUME setting**
- Adjust the input level of a microphone connected to the camera.

⑥ **LANGUAGE setting (page 144)**

⑦ **Remaining battery charge display (page 155)**

Tab 3



OPTION MENU 3
TV OUTPUT
PS POWER SAVE
No. FILE NO. CONT'D
SD FORMAT
RESET RESET SETTINGS
MENU EXIT
SET OK
①
②
③
④
⑤
⑥

1. **TV OUTPUT setting (page 145)**
2. **POWER SAVE setting (page 41)**
   - Specify the elapsed period of inactivity before the power save mode (to conserve battery power) is activated.
3. **FILE NO. CONT’D setting (page 150)**
4. **FORMAT (page 152)**
5. **RESET SETTINGS**
   - Reset the camera settings to the factory-preset settings.
   - The following settings do not change with this procedure:
     Date and time setting
     Language setting
     TV system setting
6. **Remaining battery charge display (page 155)**

INTRODUCTION TO THE OPTION SETTING MENU

Storage folder setting

Create or select a recording folder (a folder in which to store recorded files).

1 Select "REC FOLDER", and press the SET button.

<Create a new folder>

- Select "CREATE NEW FOLDER".

<Select an existing folder>

- Select the desired folder number.



2 Press the SET button.

- This completes the create/select folder setting.
- If you created a new folder, it automatically becomes the selected recording folder.

CAUTION

When an existing folder cannot be selected or a new one created...

- A folder cannot be selected if it was created using a different device, or if it already contains the maximum number of files.

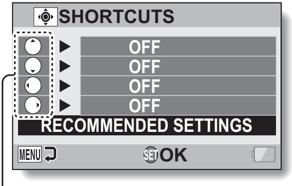
Shortcut setting

Assign functions (operation shortcuts) to the SET button when it is toggled up, down, left or right when the Recording Screen is displayed.

1 **Select "SHORTCUTS", and press the SET button.**

- : Assign the function when the SET button is toggled up.
- : Assign the function when the SET button is toggled down.
- : Assign the function when the SET button is toggled to the left.
- : Assign the function when the SET button is toggled to the right.

RECOMMENDED SETTINGS:
The most commonly used settings are automatically assigned.



SET button operations

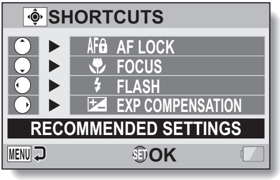
2 **Select the SET button operation to which you wish to assign the function, and press the SET button.**

- The screen to assign a function to the key appears.

OFF: No operation shortcut is assigned to the key.
AF LOCK: Lock the focus (page 76).
AE LOCK: Lock the exposure setting (page 76).
FOCUS: Set the focus range (pages 72 and 104). (This operation shortcut can be assigned only to the or key.)
FLASH: Set the flash operation (pages 56, 60 and 77).
EXP COMPENSATION: Adjust the exposure (page 112).
ISO: Set the ISO sensitivity (pages 62 and 106).
SELF-TIMER: Set the self-timer (pages 60 and 102).
EXPOSURE: Set the exposure value for the exposure setting (pages 64 and 108)
DISP. ON/OFF: Turn the shooting settings display on/off.
SEQUENTIAL: Set the image size for single shots and sequential shots.

3 Toggle the SET button up or down.
- Display the function you wish to assign to the key.

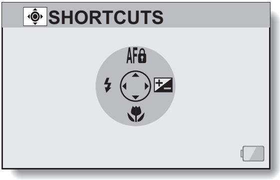
4 Press the SET button.
- The selected function is assigned to the key, and you are returned to the Shortcuts Screen.
- To assign functions to the other keys, repeat steps **2** through **4**.



<When "RECOMMENDED SETTINGS" is selected>

5 Press the MENU button.
- The screen to confirm the shortcut settings appears, and then you are returned to the Option Setting Menu.
- This completes the shortcuts setting.

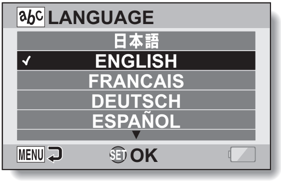
<To confirm the assigned shortcuts>
- On the screen in step **1**, press the MENU button, and the screen to confirm the shortcut settings appears.



Screen language

You can set the monitor of your camera to display the messages in any one of several languages.

1 **Select “LANGUAGE”, and press the SET button.**



日本語:	Japanese
ENGLISH:	English
FRANCAIS:	French
DEUTSCH:	German
ESPAÑOL:	Spanish
ITALIANO:	Italian
NEDERLANDS:	Dutch
РУССКИЙ:	Russian
PORTUGUÊS:	Portuguese
TÜRKÇE:	Turkish
ภาษาไทย:	Thai
한국어:	Korean
中文(简):	Chinese (simplified)
中文(繁):	Chinese (traditional)

2 **Select the desired language, and press the SET button.**

- The selected display language is set.

TV output setting

Specify the type of image signal that is output from your camera's COMPONENT/AV terminal or HDMI terminal.

1 Select "TV OUTPUT", and press the SET button.

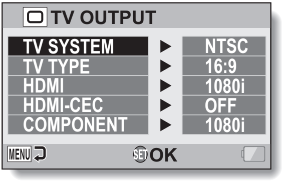
TV SYSTEM:
Set the type of TV signal that is output from the COMPONENT/AV terminal.

TV TYPE:
Set the TV's aspect ratio.

HDMI:
Set the signal that is output from the HDMI terminal.

HDMI-CEC:
Set the HDMI-CEC function.

COMPONENT:
Set the signal that is output from the COMPONENT/AV terminal.



2 **Select the desired setting, and press the SET button.**

- The screen to change the parameter for the selected setting appears.

<If “TV SYSTEM” is selected>

NTSC: Outputs NTSC video signals.
PAL: Outputs PAL video signals.

<If “TV TYPE” is selected>

4:3: Use this setting when a TV having an aspect ratio of 4:3 is connected.
16:9: Use this setting when a TV having an aspect ratio of 16:9 is connected.

<If “HDMI” is selected>

AUTO: The output signal is automatically set to match the mode in which the video clip was recorded.
1080p: Choose this setting if the video was recorded in the [Full-HR] or [Full-SHQ] mode.
720p: Choose this setting if the video clip was recorded in the [HD-SHQ] mode.
1080i: Choose this setting if the video clip was recorded in the [Full-HD] mode.
480p: Choose this setting if the video clip was recorded in the [TV-SHQ] mode.

- Does not work with 480i connector.

<If “HDMI-CEC” is selected>

ON: Sets the HDMI-CEC function to “ON”.
OFF: Sets the HDMI-CEC function to “OFF”.

<If “COMPONENT” is selected>

1080p: Choose this setting if the video was recorded in the [Full-HR] or [Full-SHQ] mode. (Also, choose this setting if your TV is equipped with a 1080p connector.)
720p: Choose this setting if the video clip was recorded in the [HD-SHQ] mode. (Also, choose this setting if your TV is equipped with a 720p connector.)
1080i: Choose this setting if the video clip was recorded in the [Full-HD] mode. (Also, choose this setting if your TV is equipped with a 1080i connector.)
480p: Choose this setting if the video clip was recorded in the [TV-SHQ] mode. (Also, choose this setting if your TV is equipped with a 480p connector.)

- Does not work with 480i connector.
- Select the setting that matches the mode in which the video clip was recorded. However, your TV may not support the recorded mode, so please refer to the specifications for the TV type indicated in parentheses.

3 Toggle the SET button up or down to select the desired parameter.

4 Press the SET button.

5 Press the MENU button.

- This completes the TV output setting.

HINT

About the HDMI-CEC function

- This is a system control function by which, through an HDMI cable, a control signal is output to electronic devices and the operation of multiple devices is coordinated.
- The HDMI-CEC function will operate correctly only when the camera is connected to a SANYO TV that incorporates the HDMI-CEC function.
- When the HDMI-CEC function is used, your TV's remote control unit can be used to operate the camera playback; however, it does not work to turn the camera ON. In addition, in the playback mode, the camera's power save function is disabled.
- For information concerning connecting and operation, please see your TV's instruction manual.
  (As of May 2008, SANYO TVs that incorcorporate the HDMI-CEC function have not been released.)

Relation between “TV TYPE” setting and TV display

The tables below show the video signal that is output when the “TV TYPE” setting is changed. However, note that for some TVs that have an auto-detect function, the output may not conform to the table, or the TV display may not change at all.

“TV TYPE” setting	TV type to be connected	Image file to be displayed	TV display
4:3	4:3	Still image (4:3)	
		Video clip in SD mode	
		Video clip in HD mode	

"TV TYPE" setting	TV type to be connected	Image file to be displayed	TV display
16:9	16:9	Still image (4:3)	
		Video clip in SD mode	
		Video clip in HD mode	

CAUTION

If the TV display is not correct…

- If the appearance of the image on the TV monitor is not correct, you can either change the camera's "TV TYPE" setting, or change the screen size setting on your TV. To change the screen size setting on your TV, please refer to the instruction manual for your TV.

The aspect ratio of the output still image does not change to 16:9?

- The still image output will be 4:3 for images captured in a 4:3 still image mode.

File No. continued setting

If a newly formatted card is used, the file name (image number) of the captured image automatically begins from 0001. If the card is subsequently reformatted, or if a different reformatted card is used, the file names again begin from 0001. This is because the file number continued function is set to "OFF", and consequently it results in more than one card containing images with the same numbers. By setting the file number continued function to "ON", even if the card is reformatted or the card is replaced with another card, the consecutive numbering of file names continues from the last number recorded by the camera.

<File number continued function "OFF">

	File name (image number)
Card A	0001, 0002...... 0012, 0013

Replace card

Card B	0001, 0002...... 0012, 0013

<File number continued function "ON">

	File name (image number)
Card A	0001, 0002...... 0012, 0013

Replace card

Card B	0014, 0015........0025, 0026

- If Card B already has files in it when it replaces Card A, file names are assigned as follows.

  When the highest file number on Card B (before replacing) is lower than the highest file number on Card A: the file name of the next recorded image continues from last file name recorded on Card A.

Card A	0001, 0002 ..... 0012, 0013

Replace card

Card B	0001, 0002, 0014, 0015 ..... 0025, 0026

Previously recorded files

  When the highest file number on Card B (before replacing) is higher than the highest file number on Card A: the file name of the next recorded image continues from last file name recorded on Card B.

Card A	0001, 0002 ..... 0012, 0013

Replace card

Card B	0020, 0021, 0022, 0023 ..... 0025, 0026

Previously recorded files

HINT

- Until the file number continued function is turned "OFF", consecutive file names are assigned. It is recommended that the file number continued function be returned to "OFF" at the end of each photography session.

Formatting (initializing)

A card must be formatted with this camera:
- After purchasing, when used for the first time, or
- If it was formatted using a personal computer or another digital camera.

The card cannot be formatted if the lock switch is set to the “LOCK” position. Proceed with the format procedure after setting the lock switch to the unlocked position.

CAUTION

Caution during formatting
- Do not turn off the power to the camera or eject the card during formatting.

Formatting erases the data
- When a card is formatted, all data recorded on the card is erased. Protected data (pages 65 and 115) is also erased, so before formatting a card, any data you want to keep should be copied to your personal computer’s hard disk or other storage medium.

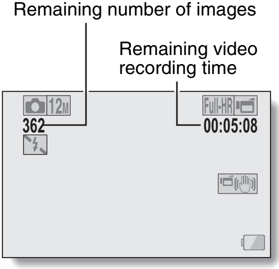
Caution regarding disposing/transferring the card (recovering data from a reformatted card)
- If a card is reformatted or the data is erased from the card using the camera or a computer, the card’s control data may be merely modified and the data itself may not be completely erased from the card.
- In some cases it may be possible to recover the data from a reformatted card using special software for that purpose. However, if the camera is used to execute a full format, it will be impossible to recover the data even by the use of data recovery software.
- If you are disposing of a card, it is recommended that you physically destroy it. If you are transferring the card to someone else to use, it is recommended that you use the camera’s full format function to reformat the card, or use commercially available software for erasing card data. Managing data is the responsibility of the user.

CHECKING THE REMAINING CARD MEMORY

You can check how many images can be captured and how much recording time is available on the card. For a table showing the maximum number of images and recording time for specific cards, please see "Possible No. of Images/Possible Shooting Time/Possible Recording Time" on page 196.

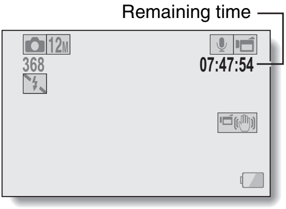
Checking the remaining number of images and video recording time

1 Set the REC/PLAY switch to REC, and turn on the camera.
- The remaining number of images appears in the upper left of the monitor.
- The remaining video recording time appears in the upper right of the monitor.
- The remaining number of images and video recording time will differ depending on the resolution and compression settings.



For audio recordings

1 Set the camera to the audio recording mode (page 97).
- The remaining audio recording time is shown.



HINT

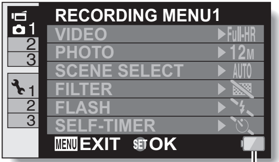
- When the remaining number of images or the remaining video recording time is “0”, you cannot capture any more images. To capture more images, either install a new card, or save the images to a computer and then delete them (page 90) from the card.
- When the remaining number of images or the remaining video recording time is “0”, it may be possible to capture a few more images by setting a lower resolution setting (pages 71, 96 and 100), or selecting a different image quality setting.

CHECKING THE REMAINING BATTERY PACK CHARGE

When using the battery pack, the remaining battery pack charge can be checked on the monitor. Make sure to check this indicator before capturing an image. For an indication of the possible length of time for battery pack operation, see page 195.

1 **Display the Recording Menu or Playback Menu (page 49).**

- The battery pack remaining charge indicator appears in the lower right corner of the monitor.
- Due to the battery pack characteristics, when the ambient temperature is low,  may appear early for an incorrect indication of the remaining charge.
  Also, depending on the conditions of use of the camera or the ambient conditions (temperature, etc.), the indicated remaining charge may change. Therefore, this indication can only be used as a general approximation of the remaining charge.



Battery pack remaining charge indicator



Remaining battery time indication

<Recording Screen>

Battery pack remaining charge indicator	Battery remaining charge
	Approx. full.
	Sufficient power for recording and playback.
	Power is low.
	It will soon be impossible to capture or play back images.
	If this icon flashes when the [ ] button or [ ] button is pressed, images cannot be captured. Recharge the battery pack.

- The approximate remaining battery time indication appears on the monitor. Please use this as a reference to estimate the remaining recording and/or playback time.

HINT

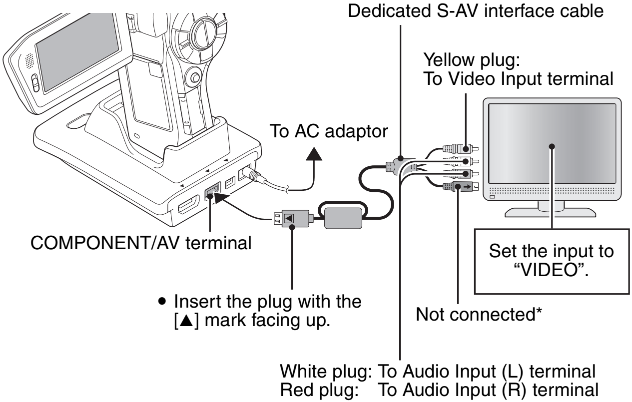
- Battery life may differ even among battery packs of the same type.
- Depending on the usage of the camera (such as the number of times the flash is used, the use of the monitor, etc.) or the ambient temperature (temperatures below 10 °C [50°F]), the number of images that can be saved on a fully charged battery pack will vary greatly.
- It is recommended that you prepare an extra battery pack(s) when taking pictures at a wedding or while traveling, for example, so you don’t miss capturing images of important moments due to the battery pack power running out. The same is recommended for taking photos in cold environments. (In a ski area, for example, the battery pack can be kept warm in your pocket until ready to use.)

CONNECTING TO A STANDARD VIDEO INPUT TERMINAL

About image output: The image output destination differs depending on the connection cable.

Connection cable	Image output destination	Recording mode		Playback mode
		Standby	Recording	
Dedicated S-AV interface cable	Camera monitor	NTSC: × PAL: ○	○	×
	TV	NTSC: ○ PAL: ×	×	○
Dedicated component cable	Camera monitor	×	○	×
	TV	○	×	○
HDMI cable	Camera monitor	×	○	×
	TV	○	×	○

○: Images are output ×: Images are not output

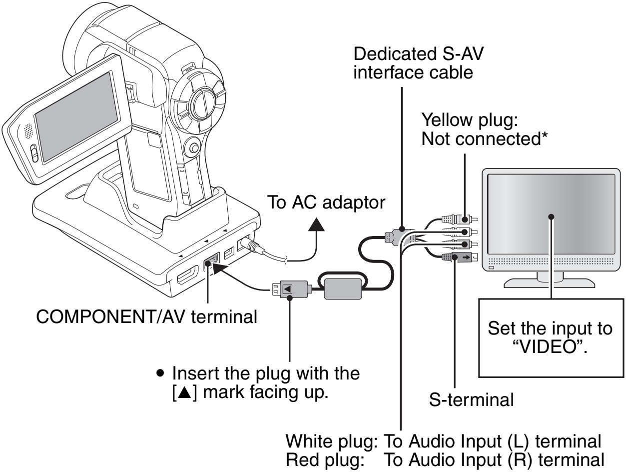


* When connected, the images are not produced normally on the TV monitor.

ENJOY HIGHER IMAGE QUALITY

Connect to the S-VIDEO terminal

<When connecting to an S-VIDEO input terminal>

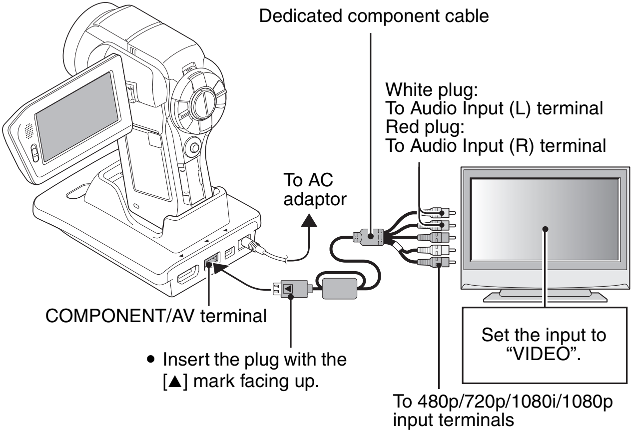


* When connected, the images are not produced normally on the TV monitor.

ENJOY HIGHER IMAGE QUALITY

Connect to the 480p/720p/1080i/1080p terminal

If your TV has a 480p/720p/1080i/1080p input terminal, you can enjoy the high video quality of component output from your camera.



NOTE

If your TV does not have 480p/720p/1080i/1080p video input capability

- The images will not appear on the TV.

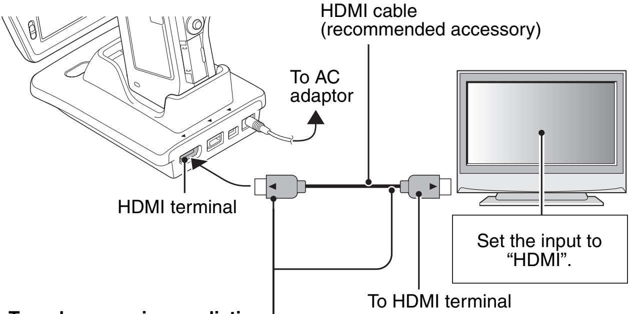
Camera Menu Screen and TV Menu Screen

- The Menu Screen appears only on the TV monitor, so please operate the camera while looking at the TV monitor.

Insert and pull out the cable carefully

- When connecting the cables, make sure that the cable plugs are correctly oriented and that they match the shapes of the terminal sockets on the devices. Push the plugs in straight when connecting them. If undue force is used to connect a cable, it may permanently damage the connector pins in the terminal socket.
- Do not use excessive force when connecting and disconnecting cables.

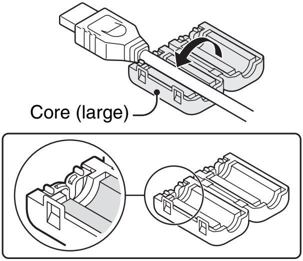
Connecting to the HDMI terminal



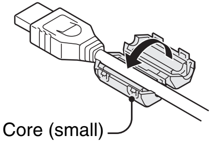
To reduce spurious radiation

- Please affix the cores (included)

<Docking station end>



<TV end>



HINT

- HDMI, the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing, LLC.

PLAYING BACK ON A TV

- After connecting the camera to the television, switch the TV input to the terminal to which the camera is connected.
- When the camera is connected to a TV, no image appears on the camera's monitor.
- The playback method is the same as when viewing images on the camera's monitor.
  Audio playback: see page 98
- The remote control unit can be used for playback (page 83).
- The same playback procedure as when playing back with the camera is used to play back audio recordings as well.
- Use the TV controls to adjust the playback volume. The camera's controls will not work to adjust the volume.
- If the camera set in the docking station is in the sleep mode, press the operation mode button [ ] on the docking station, or the ON/OFF button on the remote control unit, to turn the camera on.

CAUTION

Insert and pull out the cable carefully

- When connecting the cables, make sure that the cable plugs are correctly oriented and that they match the shapes of the terminal sockets on the devices. Push the plugs in straight when connecting them. If undue force is used to connect a cable, it may permanently damage the connector pins in the terminal socket.
- Do not use excessive force when connecting and disconnecting cables.

HINT

About the display when the "PAL" TV system is selected (page 145) and the supplied S-AV interface cable is used to connect the camera to the TV

During recording: The image appears on the monitor only; it does not appear on the TV.

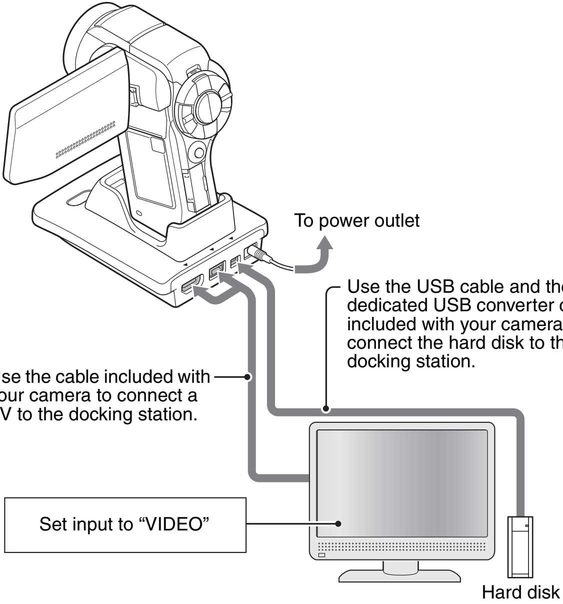
During playback: The image appears on the TV only; it does not appear on the monitor.

Xacti Library

Connect all the devices.

- Please make sure that the camera and all devices are turned OFF before proceeding.

For detailed information about using Xacti Library, please see the separate Xacti Library Instruction Manual.



CAUTION

Caution when disconnecting cables

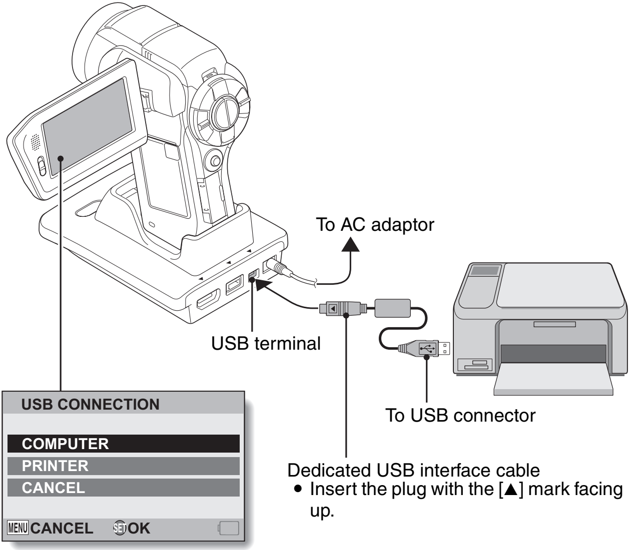
- When using the Xacti Library, do not remove the camera from the docking station, or disconnect the USB cable. If the USB cable is disconnected while accessing the media, not only may the stored files be damaged, but it may also become necessary to reformat the media, and in doing so, lose all the data.
- Be sure to turn off the camera before removing it from the docking station. By turning off the camera, you will be able to safely disconnect the drive.

PRINTING

Your camera supports the PictBridge function. By connecting the camera directly to a PictBridge-enabled printer, the camera's monitor can be used to select images and initiate printing (PictBridge printing).

1 Install the card in the camera, open the monitor unit to turn on the camera, and turn on the printer.

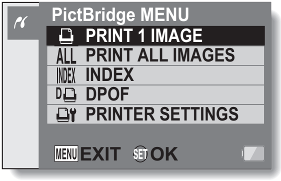
2 Use the supplied docking station to connect the camera to the printer.



3 Select "PRINTER", and press the SET button.

4 The PictBridge printing mode is activated.

- The camera switches to the PictBridge printing mode, and the PictBridge Menu Screen appears.



5 Select the desired type of printing, and press the SET button.

PRINT 1 IMAGE: Select the still images you wish to print.
PRINT ALL IMAGES: Print all the still images in the card.
INDEX: Print all the still images in the card as thumbnail images, many images per print.
DPOF: Print images according to the print order settings.
PRINTER SETTINGS: Print images according to settings specified by the camera, such as paper size, type, size, layout, printing quality, etc.

HINT

To cancel printing

① **During printing, toggle the SET button down.**
- The confirmation screen to cancel printing appears.

② **Select "CANCEL" and press the SET button.**
- If "EXIT" is selected and the SET button is pressed, printing resumes.

About printing all the images
- Printing is not possible if there are more than 999 images in the card.
- Delete unwanted images before printing.

About DPOF printing
- DPOF printing is not possible if your printer is not DPOF-compatible.

About the printer settings
- The printer setting parameters shown on the Printer Settings Screen will differ depending on the printer that is connected.
- To use printer values that do not appear on your camera's Printer Settings Screen, select "[printer icon]".
- If a function set by the camera is not available in the printer, the camera's printer setting will automatically change to "[printer icon]".

CAUTION

Insert and pull out the cable carefully
- When connecting the cables, make sure that the cable plugs are correctly oriented and that they match the shapes of the terminal sockets on the devices. Push the plugs in straight when connecting them. If undue force is used to connect a cable, it may permanently damage the connector pins in the terminal socket.
- Do not use excessive force when connecting and disconnecting cables.

Caution when connecting a printer
- If the power to the printer is turned off while it is connected, the camera may not operate correctly. If the camera does not operate correctly, disconnect the USB interface cable, turn off the camera, and then reconnect the cable.
- During PictBridge printing, the camera's button operation response is slower.
- If the camera is powered by the battery pack for printing, make sure that the remaining battery charge is sufficient.

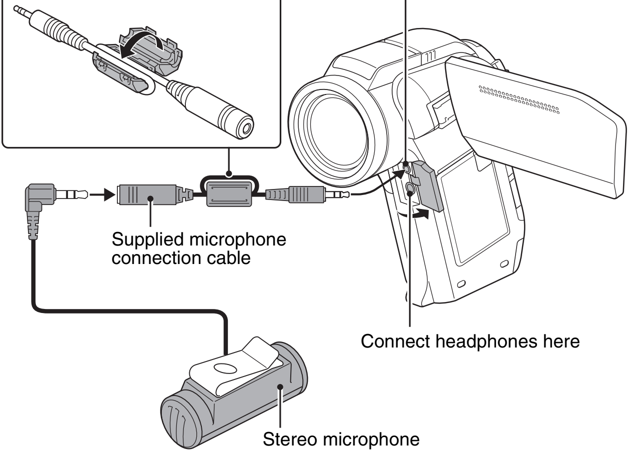
CONNECTING A MICROPHONE/ HEADPHONES

A commercially sold stereo microphone as well as headphones can be connected to the camera.

Commercially sold stereo microphone: OLYMPUS (ME51SW)

To reduce spurious radiation

- Please affix a small core (supplied) to the cable.

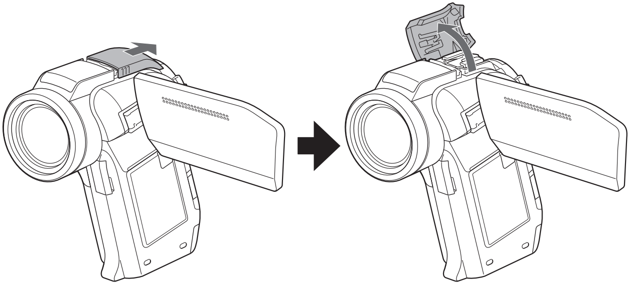


HINT

- The input level of the connected microphone can be adjusted (page 138).
- When an external microphone is connected, the camera's stereo microphone is disabled.
- When headphones are connected, the internal speaker output is turned OFF.
- It is recommended that you do not use headphones while driving an automobile or motorbike, while riding a bicycle or while walking.

SHOE MOUNT

Various devices—such as an external microphone, an auxiliary flash unit, a video light, etc.—can be attached to the shoe mount on top of the camera. Use the shoe mount for superior image quality when shooting.



HINT

About connectable devices

- Only a slave flash unit can be used with the shoe mount.
- Note that the shoe mount on this camera is not a hot shoe.
- The shoe mount may not accommodate some devices, such as some large-size flash units or video lights.

CAUTION

- Take care not to apply undue force when attaching a device to the camera's shoe mount, as doing so may damage the shoe mount or the adaptor on the device.

COMMONLY ASKED QUESTIONS

If you have a question about the camera operation, you might find the answer in this compilation of commonly asked questions.

	Question	Answer	Action
Power	Why doesn’t the power turn on?	Due to cold temperatures, the battery pack temporarily lost its power.	Place the camera in your pocket to warm it up before using it.
	Why is the battery pack consumed so quickly even after it was fully recharged?	The ambient temperature is very low.	Keep the battery pack in an environment of 10 to 40 °C (50 to 104°F).
	Why doesn’t recharging end?	The battery pack life has expired.	Replace with a new battery pack. If this is not effective, consult your dealer.
	Why does the  icon appear?	The remaining battery pack power is low.	Use the supplied AC adaptor, or replace the battery pack with a fully charged one.
Shooting	Why does the multi-indicator flash red?	A recorded file is being saved on the card.	Not a malfunction. Wait until the multi-indicator turns off.
	Why doesn’t the flash operate?	The camera has determined that the image is bright enough and the flash is not necessary.	Not a malfunction. Capture the image; the camera will determine when the flash is necessary.

COMMONLY ASKED QUESTIONS

	Question	Answer	Action
Shooting	Are the settings retained even after the camera is turned off?	—	All settings except the self-timer and the exposure compensation are retained even after the camera is turned off.
	Which resolution setting should I use?	—	Select the resolution setting according to the intended use. 12M, 8M-H, 8M-S, 6M, 8M, 4M: Appropriate for printing letter-size or larger, and for printing a close-up of part of a photo (trimming). 2M, 2M: For printing standard photo (photo service) sizes. 0.9M, 0.3M: For photos displayed on a web page, or sent as e-mail attachments.

	Question	Answer	Action
Shooting	What is the difference between the digital zoom and the optical zoom?	—	Because shooting with the optical zoom uses the optics of a physical lens, you can shoot without losing minute details in the image. The digital zoom, on the other hand, works by magnifying a portion of the image that hits the image sensor and may produce a coarser image.
	How can I get the distant view into focus?	—	Set the scene select function to the landscape [landscape icon] mode when photographing. Or, set the focus range setting to manual focus [MF], and set the distance to ∞.

APPENDICES

COMMONLY ASKED QUESTIONS

	Question	Answer	Action
Monitor	When used in cold weather, why does the image seem to leave traces as it moves?	Condition due to the monitor characteristics.	Not a malfunction. Spots that appear in the monitor only appear in the monitor and will not be recorded with the images.
	Why does the displayed image contain some red, blue and green dots, or why are black spots visible?		
Viewing images	Why is the image too bright?	The subject was too bright.	When capturing an image, devise a way to compensate for a bright subject, for example, by changing the shooting angle.
	Why is the image out of focus?	The focus is not locked properly.	Hold the camera correctly and slowly press the [ ] button halfway to lock the focus. Then press the [ ] button all the way to capture the image.
	Why is a part of the image missing?	The image was captured at close range.	When capturing an image at close range, compose the image using the monitor.

	Question	Answer	Action
Viewing images	Why is there no image ([?] is shown)?	This may happen when trying to play back images stored on a card from a different digital camera.	Play back images that were recorded on a card using this camera.
	Why is the playback image distorted?	If the subject moves or the camera is moved during recording, a distorted image may sometimes occur.	Not a malfunction. This is a characteristic of the CMOS sensor.
	Why isn't the magnified image clear?	Due to the characteristics of the camera, magnified images appear less clear.	Not a malfunction.
	Why isn't the captured image clear?	The image was captured using the digital zoom.	Not a malfunction.
	Can I play back image and sound files that I edited using my computer?	—	We cannot guarantee the accurate playback of files that have been edited using a computer.
	Why is there a motor-like sound during video clip playback?	The sound of the camera's mechanical action was recorded.	Not a malfunction.

COMMONLY ASKED QUESTIONS

	Question	Answer	Action
Connecting to a TV	Why is there no sound?	The volume on the TV is set to the minimum.	Adjust the volume on the TV.
	What is the difference among the normal video (composite video) output, S-video output and component/HDMI output?	—	Normal video (composite video) output: Combines Y (luminance) signal and chrominance signal and outputs the combined signal. S-video output: Outputs the Y signal and chrominance signal separately. Component/HDMI signal: Outputs the Y signal, B-Y signal and R-Y signal separately. The picture quality becomes increasingly higher, in order from normal video output, to S-video output, to component output, to HDMI output.
	Can the dedicated S-AV interface cable and the dedicated component cable be connected at the same time and output the image?	—	You cannot output the image when both cables are connected at the same time. Connect only one of the cables.

	Question	Answer	Action
Printing	Why does a message appear during PictBridge printing?	There is a problem with the printer.	Please refer to the instruction manual for your printer.
Misc.	The “Cannot edit video clips with unlike settings” message appears.	You have attempted to join video clips having different resolutions or frame rates.	Select video clips that have the same resolution or frame rate.
	Why is a noise heard from a nearby TV or radio during battery recharging?	Electromagnetic waves are emitted from the AC adaptor.	Move the AC adaptor further away from the TV or radio when recharging the battery pack.
	Why does the “Card full” message appear?	There is no more available memory on the card.	Delete unnecessary files, or use a card that has more memory available.
	Why does the “Card is protected” message appear?	The lock switch on the card is in the locked (protect) position.	Move the lock switch to the unlocked position.
	Why can’t the camera be operated?	A temporary internal circuitry problem may be the cause.	Remove the AC adaptor and the battery pack from the camera, wait a few minutes, then reinstall the battery pack and try again.

	Question	Answer	Action
Misc.	A problem such as inability to record or play back occurs.	The card contains files that were saved using a device other than this camera.	After saving your files to a different medium, format the card.
	Can I use my camera abroad?	—	When the camera is connected to a TV, you can switch the camera's video output to NTSC or PAL. If you have questions about accessories etc., please consult with a dealer near you for advice.
	Why does the "System error" message appear?	A problem has occurred within the camera or card.	Check the following items: ① Remove the card and then install it again. ② Remove the battery pack and then install it again. ③ Install a different card. If "System error" still appears after performing the above steps, then take the camera to the dealer for service.

TROUBLESHOOTING

Before taking your camera to the repair shop, check the following table for a possible solution to the problem.

Camera

	Problem	Cause	Action	Reference page
Power	No power.	The battery pack is dead.	Recharge the battery pack, or replace with a new battery pack. Or connect the AC adaptor (supplied).	33, 37
		The battery pack has not been inserted correctly.	Reinsert the battery pack, making sure to orient it correctly.	
	A blinking temperature warning icon is [icon] shown, and the camera does not turn on.	The battery pack is too hot.	Wait for the battery pack to cool down.	39
	The camera turns off by itself.	The power save function is operating.	Turn on the camera again.	41

APPENDICES

TROUBLESHOOTING

	Problem	Cause	Action	Reference page
Shooting	An image is not captured when the [camera] button or [video] button is pressed.	The power is not turned on.	If the power save function was activated, turn on the camera before shooting. If the camera was turned off, press the ON/OFF button to turn it on.	41
		The maximum number of images that can be captured or the maximum video clip recording time has been reached.	Install a new card.	27
			Delete the images that are not necessary.	90

	Problem	Cause	Action	Reference page
Shooting	The flash does not operate.	The flash off mode is selected.	Set the flash to automatic flash mode or forced flash mode.	60, 77
		The flash unit is not open.	Press the [ϟ] button to open the flash unit.	77
		The battery pack is dead.	Recharge the battery pack, or replace with a fully charged battery pack. Or connect the AC adaptor (supplied).	33, 37
	The digital zoom does not work.	The still image is set to [12M].	Set the still image to [8M-H] or lower.	60, 111
		The digital zoom setting is set to “OFF”.	Set the digital zoom setting to “ON”.	64, 111

TROUBLESHOOTING

	Problem	Cause	Action	Reference page
Shooting	A warning tone (beep-beep-beep) sounds, and it is not possible to take a picture using the self-timer.	The battery pack is consumed.	Recharge the battery pack, or replace with a fully charged battery pack. Or connect the AC adaptor (supplied).	33, 37
	When zooming in or out, the zoom movement stops momentarily.	The optical zoom has moved to the maximum magnification position.	Not a malfunction. Release the zoom switch, and push it again.	81
	There is noise in the captured image.	The ISO sensitivity setting is too high.	Set the ISO sensitivity to a lower setting.	62, 106
	The [temperature warning] icon appears, and shooting is not possible.	The camera's internal temperature is high.	Discontinue shooting, and wait for the camera to cool down before using it again.	39
Monitor	No playback image appears.	The REC/PLAY switch is not set to PLAY.	Set the REC/PLAY switch to PLAY.	46, 84

	Problem	Cause	Action	Reference page
Viewing images	The image is too dark.	The flash was blocked by a finger or other object.	Hold the camera correctly, and make sure the flash is not obstructed.	68
		The subject was too far away.	Capture the image in the range of operation of the flash.	193
		The subject was lit from behind.	Use the forced flash mode.	60, 77
			Use the exposure compensation function.	112
			Use the spot light-measuring mode.	62, 105
		There is not enough light.	Adjust the ISO sensitivity setting.	62, 106

TROUBLESHOOTING

	Problem	Cause	Action	Reference page
Viewing images	The image is too bright.	The forced flash mode is selected.	Select a different flash mode.	60, 77
		The subject was too bright.	Use the exposure compensation function.	112
		The ISO sensitivity setting is incorrect.	Set the ISO sensitivity to AUTO.	62, 106
	The image is not in focus.	The subject is too close to the camera.	Capture the image with the subject within the photographable range.	62, 72, 105
		The focus setting is not correct.	Select the correct focus setting for your needs.	
		The camera moved when the [ ] button was pressed. (camera shake)	Hold the camera correctly and slowly press the [ ] button halfway to lock the focus. Then press the [ ] button all the way to capture the image.	68, 75
		The focus is not locked properly.		
		The lens is dirty.	Clean the lens.	—

	Problem	Cause	Action	Reference page
Viewing images	The colors of the images captured indoors are not correct.	This is due to ambient lighting.	Capture the image using the forced flash mode.	60, 77
		The white balance setting is incorrect.	Set the white balance setting correctly.	64, 107
	A part of the image is missing.	The strap or a finger was blocking the lens.	Hold the camera correctly, and make sure the lens is not obstructed.	68
	"No image" is shown.	There is no file in the installed card.	Play back after capturing images or making audio recordings.	—
	During audio playback, there is no sound.	The playback volume setting on the camera is too low.	Adjust the playback volume.	65, 85, 89

	Problem	Cause	Action	Reference page
Connecting to a TV	There is no color in the image. The image is distorted.	The TV output setting is not correct.	Select the correct TV output setting.	140, 145
		Both the dedicated S-AV interface cable and the dedicated component cable are connected.	Make the correct connection.	158
	No image or sound.	The camera is not correctly connected to the TV.	Follow the instructions to make the connection correctly.	157 to 160
		The TV input is not set correctly.	Set the input on the TV to “VIDEO” or “HDMI”.	
	The edge of the image is cut off.	This is a characteristic of the TV.	Not a malfunction.	—
Image editing	You cannot edit or rotate an image.	The protect mode is set.	Cancel the protect mode.	65, 115

	Problem	Cause	Action	Reference page
Charging	The camera is set in the docking station but the installed battery is not being recharged.	The AC adaptor is not connected to the docking station.	Check that the power cord of the AC adaptor is connected correctly.	29
		The camera is not correctly connected to the docking station.	When inserting the camera in the docking station, push down on it to make sure that the connection between the camera and the docking station is secure.	29, 35
		The camera is turned on.	Turn the camera off. Alternatively, press the docking station's operation mode button [⚡] to light the multi-indicator red.	198
Misc.	The "No card" message appears.	No card is inserted.	Turn off the power and insert a card.	27
	The "Image is protected" message appears and the file cannot be deleted.	You have attempted to delete a file that is protected from accidental erasure.	Set the protect setting for the file to UNLOCK.	65, 115

	Problem	Cause	Action	Reference page
Misc.	The audio guide does not sound.	The audio guide setting is set to “OFF”.	Set the audio guide setting to “ON”.	136
	The recording capacity is less than that indicated in the section “Possible No. of Images/ Possible Shooting Time/ Possible Recording Time” (page 196).	The recording capacity is less than the value specified for the card.	Depending on the card, the capacity may be less than the specified value. Please refer to the instructions that accompanied the card.	—
	The battery pack appears to be swollen.	Normal change occurring with battery use. Even with normal correct use of the lithium-ion battery, it has a tendency to swell as the number of charge and discharge cycles adds up and it gradually approaches the end of its service life.	Not a safety hazard. If the battery quickly becomes depleted, for example, it has reached the end of its service life. Replace it with a new battery pack.	—

Docking station

	Problem	Cause	Action	Reference page
Remote control unit	The remote control unit does not seem to work.	The remote control unit is aimed at the TV (not at the camera's remote control sensor).	Aim the remote control unit at the camera's remote control sensor (within a range of about 15 degrees left or right horizontally from the remote control sensor).	30, 31
		Something is obstructing the space between the remote control unit and the camera's remote control sensor.	Remove or move the obstructing object.	
		The remote control unit battery is consumed.	Replace with a new battery.	
		The remote control unit battery is not correctly inserted.	Take care that the (+) and (–) poles are correctly oriented.	

	Problem	Cause	Action	Reference page
Remote control unit	The remote control unit does not seem to work.	The remote control unit is too far from the camera's remote control sensor.	Operate the remote control unit from a position up to 7 meters (22.97 ft.) from the docking station.	30, 31
		The remote control codes for the remote control unit and camera's remote control sensor are different.	Change the remote control code.	32

Notes regarding the Scene Select feature and filters

Scene Select

Setting	Remarks
Sports Portrait	Focus range: Fixed at . Exposure: Fixed at P. Video setting: If set to Web-SHR or Web-UHR, automatically changes to Full-HD.
Landscape	Focus range: Fixed at . Face chaser: Fixed at “OFF”. Exposure: Fixed at P. Video setting: If set to Web-SHR or Web-UHR, automatically changes to Full-HD.
Night view portrait Snow & beach	Focus range: Fixed at . Exposure: Fixed at P. Video setting: If set to Web-SHR or Web-UHR, changes to Full-HD. Still image setting: When sequential shots is active, changes to 8M-S.
Fireworks	Focus range: Fixed at . Flash: Fixed at . ISO sensitivity: Fixed at AUTO. Photo stabilizer: Fixed at “OFF”. Face chaser: Fixed at “OFF”. Photo wide D-range: Fixed at “OFF”. Exposure: Fixed at P. Video setting: If set to Web-SHR or Web-UHR, changes to Full-HD. Still image setting: When sequential shots is active, changes to 8M-S.
Lamp*	Focus range: Fixed at . Flash: Fixed at . Still image NR: Fixed at “OFF”. Exposure: Fixed at P. Video setting: If set to Web-SHR or Web-UHR, changes to Full-HD. Still image setting: When sequential shots is active, changes to 8M-S. ISO sensitivity: Fixed at AUTO.

* In some cases, the shutter speed may decrease to 1/15 sec.

Filter

Setting	Remarks
Monochrome [icon]	Still image mode: [12M] cannot be selected.
Sepia [icon]	

About the scene select function and focus range settings

- The scene select function changes to [AUTO] when the focus range is set to [macro].
- Even if you set the focus range to [macro] or [MF], it changes to [scene] when the scene select function is set to any setting other than [AUTO].

SPECIFICATIONS

Camera

Recorded image file format	**Still images:** JPEG format (DCF, DPOF, Exif 2.2 compliant) Note: Designed mainly by the Japan Electronics and Information Technology Industries Association (JEITA), DCF (Design rule for Camera File system) is standard for digital still camera image files to provide interoperability between digital photography devices for the images stored on removable memory cards. However, it is not guaranteed that all devices will support the DCF standard. **Video clips:** Conforms to ISO-standard MPEG-4 AVC/H.264* **Audio:** MPEG-4 audio (AAC compression) 48 kHz sampling rate, 16-bit stereo format
Data storage media	SD Memory Card (accepts a maximum 32 GB SDHC Memory Card)
Image sensor/ camera effective number of pixels	1/2.5-inch (1.0 cm) CMOS sensor Still images: Approx. 8 million pixels Videos (HD mode): Approx. 5.31 million pixels Videos (SD mode): Approx. 2 million pixels

* Video clip files recorded with models VPC-CA65 and VPC-CG65 are in the same H.264 format as this model. However, such files cannot be played back, since they are not compatible due to differences such as the data compression method.

SPECIFICATIONS

Still image shooting mode (recording resolution)	12M: 4000 × 3000 pixels (approx. 12 million pixels) 8M-H: 3264 × 2448 pixels (approx. 8 million pixels, low compression) 8M-S: 3264 × 2448 pixels (approx. 8 million pixels, normal compression) 6M: 3264 × 1840 pixels (approx. 6 million pixels, 16:9 aspect ratio) 2M: 1920 × 1080 pixels (approx. 2 million pixels, 16:9 aspect ratio) 2M: 1600 × 1200 pixels (approx. 2 million pixels) 0.9M: 1280 × 720 pixels (approx. 900,000 pixels, 16:9 aspect ratio) 0.3M: 640 × 480 pixels (approx. 300,000 pixels) 8M: 3264 × 2448 pixels (approx. 8 million pixels, sequential shots) 4M: 2288 × 1712 pixels (approx. 4 million pixels, sequential shots)
Video clip recording mode (recording resolution)	HD mode Full-HR: 1920 × 1080 pixels, 60 fps (60p) Full-HD: 1920 × 1080 pixels, 60 field/s (60i) Full-SHQ: 1920 × 1080 pixels, 30 fps (30p) HD-SHQ: 1280 × 720 pixels, 30 fps (30p) SD mode TV-SHQ: 640 × 480 pixels, 30 fps (30p) WebSHR: 448 × 336 pixels, 240 fps (High-speed recording) WebUHR: 192 × 108 pixels, 600 fps (High-speed recording) • The 60 fps frame rate of this camera is 59.94 fps, the 30 fps frame rate is 29.97 fps, the 240 fps frame rate is 239.76 fps and the 600 fps frame rate is 599.4 fps.
White balance	Full-auto TTL, manual setting possible
Lens	Focal length: f = 6.3 mm to 63.0 mm, Optical 10× zoom Open: F = 1.8 (Wide) to 2.5 (Tele) 8 groups, 11 elements (including three with five aspheric surfaces) Galvanometer iris Internal ND filter 35 mm film camera conversion Still image shooting: 38 mm to 380 mm (10×) Video clip recording: 44.4 mm to 710 mm (16× Advanced Zoom)

Exposure control type	Programmable AE/Shutter speed priority AE/ Aperture priority AE/Manual exposure control Exposure compensation available from the Shooting Setting Screen (0 ±1.8 EV in 0.3 EV steps)
Light-measuring mode	Multi-section measuring, center-weighted measuring, spot measuring
Range	Normal mode: 50 cm (19.69 in.) to infinity Super macro mode: 1 cm (0.39 in.) to 1 m (3.28 ft.) (Wide end only)
Digital zoom	For shooting: 1× to approx. 10× For playback: 1× to 62.5× (varies with resolution)
Shutter speed	Still image shooting mode: 1/2 to 1/1,000 sec. (Maximum approx. 4 seconds when scene select function set to lamp) (During flash: 1/30 to 1/1,000 sec.) Sequential shots mode: 1/15 to 1/1,000 sec. (no flash) Video clip recording mode: 1/30 to 1/10,000 sec. (1/15 sec. max.: when scene select function is set to the lamp high sensitivity mode)
Sensitivity	Still image shooting (standard output sensitivity*)/ video clip recording mode: Auto (video clip recording: ISO 50 to 800; still image shooting: ISO 50 to 200)/ISO 50, ISO 100, ISO 200, ISO 400, ISO 800, ISO 1600, and ISO 3200 (switchable from Shooting Setting Screen) • Sensitivity measured in compliance with the ISO standard (ISO 12232:2006). • Maximum ISO sensitivity up to 1600 equivalent when Scene Select function is set to . • Recorded at ISO 1600 in the video clip recording mode, even if ISO sensitivity setting is 3200.

SPECIFICATIONS

Minimum subject illumination	6 lux (1/30 sec in the scene select AUTO mode) 2 lux (1/15 sec in the HIGH SENSITIVITY or lamp mode)	
Image stabilizer	Video: Electronic Still image: Multi-calculation electronic	
Monitor	2.7" (6.9 cm) low-temperature polysilicon TFT color wide liquid crystal (transmissive), approx. 230,000 pixels	
Flash working range	GN = 6.2 Approx. 20 cm (7.87 in.) to 6.0 m (19.69 ft.) (Wide) Approx. 80 cm (31.50 in.) to 5.0 m (16.40 ft.) (Tele)	
Flash modes	Auto-flash, forced flash, flash off, red-eye reduction	
Focus	TTL-type AF (still image shooting mode: 9-point range finder/spot focus; video clip recording mode: Continuous focus), manual focus (22 steps)	
Self-timer	Approx. 2-second delay, 10-second delay	
Ambient environment	Temperature	0 to 40 °C (32 to 104°F) (operation) 0 to 35 °C (32 to 95°F) (when charging) –20 to 60 °C (–4 to 140°F) (storage)
	Humidity	30 to 90% (operating, no condensation) 10 to 90% (storage, no condensation)
Power supply	Battery pack (supplied)	Li-ion battery pack (DB-L50) ×1
	AC adaptor (supplied)	VAR-G9
Power consumption		4.3 W (When using the Li-ion battery during recording)
Dimensions (excluding protrusions)		90 (W) × 54.5 (D) × 112.6 (H) mm 3.54 (W) × 2.15 (D) × 4.43 (H) in. (Maximum dimensions) Volumetric capacity: Approx. 272 cc
Weight		Approx. 268 g (9.5 oz.) (camera only [without battery pack and card]) Approx. 311 g (11.0 oz.) (including battery pack and card)

Camera connectors

[COMPONENT/ AV] (480p/ 1080i/720p/ 1080p output) terminal*	Regrouped jack	
	Audio output	265 mVrms (–9 dBs), 12 kΩ or less, stereo
	Video output	1.0 Vp-p, 75 Ω unbalanced, sync negative, composite video NTSC color TV system/PAL color TV system (switchable from the Option Screen)
	S-video output	Y signal: 1.0 Vp-p, 75 Ω, unbalanced, sync negative C signal: 0.286 Vp-p, 75 Ω, unbalanced NTSC color TV system/PAL color TV system (switchable from the Option Setting Menu)
	For 480p/1080i/720p/1080p video output Y signal: 1.0 Vp-p/75 Ω unbalanced, tri-level sync Pb and Pr signals: 0.7 Vp-p/75 Ω unbalanced	
[HDMI] terminal*	Video output Total number of scan lines (effective number of scan lines): 750p (720p)/1125i (1080i)/525p (480p)/1125p (1080p) Audio output: L-PCM 48 kHz sampling	
[USB] terminal*	USB 2.0 High-speed	
[MIC] (microphone input) terminal	ø2.5 mm stereo mini jack (converts to a ø3.5 mm stereo mini jack by the supplied microphone connection cable), 2 kΩ. Sensitivity: less than –42 dB (plug-in power type microphone)	
Headphone jack	ø3.5 mm mini-jack (stereo headphone jack, impedance 16 Ω to 32 Ω)	
	Audio output	310 mVrms (–8 dBs), 47 kΩ, stereo
DC IN (external DC power input) terminal	DC 5 V (for exclusive use with the supplied AC adaptor [VAR-G9])	

* Via the docking station

SPECIFICATIONS

Battery life

Shooting	Still image shooting mode	Approx. 355 images: CIPA standard (when a SanDisk 2 GB SD Memory Card is used)
	Video clip recording mode	Approx. 135 minutes: Recorded in Full-HD mode
Playback		Approx. 350 minutes: Monitor on, continuous playback

- Until battery pack runs out when using a fully charged battery pack at a 25 °C (77°F) ambient temperature.
- The operation time may vary depending on the conditions of the battery pack and the conditions of use. Especially when used at temperatures below 10 °C (50°F), the battery pack operation time is significantly reduced.

Possible No. of Images/Possible Shooting Time/ Possible Recording Time

Shooting/ recording mode	Resolution setting	SD Memory Card		
		4 GB	8 GB	16 GB
Still image mode	12M	1,000 images	2,000 images	4,020 images
	8M-H	1,000 images	2,000 images	4,020 images
	8M-S	1,470 images	2,960 images	5,940 images
	6M	1,960 images	3,950 images	7,920 images
	2M	5,390 images	10,800 images	21,700 images
	2M	5,640 images	11,300 images	22,700 images
	0.9M	10,300 images	20,700 images	41,600 images
	0.3M	24,800 images	49,800 images	99,800 images
	8M	1,470 images	2,960 images	5,940 images
	4M	2,950 images	5,920 images	11,800 images
Video clip mode	Full-HR	21 min. 50 sec.	43 min. 50 sec.	1 hr. 28 min.
	Full-HD	32 min. 40 sec.	1 hr. 5 min.	2 hr. 11 min.
	Full-SHQ	43 min. 20 sec.	1 hr. 27 min.	2 hr. 54 min.
	HD-SHQ	57 min. 30 sec.	1 hr. 50 min.	3 hr. 50 min.
	TV-SHQ	2 hr. 45 min.	5 hr. 32 min.	11 hr.
	WebSHR	1 hr. 4 min.	2 hr. 9 min.	4 hr. 19 min.
	WebUHR	1 hr. 4 min.	2 hr. 9 min.	4 hr. 19 min.
Audio recording mode	—	64 hr. 50 min.	130 hr.	261 hr.

- If the continuous recording time of a voice memo exceeds about 13 hours, the recorded file is saved once, and then recording continues in a new file. In the video clip recording mode, when the size of the file being recorded exceeds 4 GB, the recorded file is saved once, and then recording continues in a new file. (These 4 GB segments are automatically created. The recording session continues until you stop recording, but video clip or voice memo recording is temporarily interrupted while the file is being saved.)
- The above values apply when an SD Memory Card by SanDisk is used.

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- Even with cards of the same capacity, the amount of data that can actually be stored may differ depending on the card brand, etc.
- The continuous shooting time for each video clip will differ depending, for example, on the card capacity, environmental conditions (temperature and shooting conditions, etc.).

Docking station

Part number		PDS-HD2000
Power supply		DC 5V
Rated output		DC 5V
Ambient environment	Temperature	0 to 35 °C (32 to 95 °F) (recharge), –20 to 60 °C (–4 to 140 °F) (storage)
	Humidity	20 to 80% (no condensation)
Dimensions		105.5 (W) × 80.5 (D) × 44.4 (H) mm 4.15 (W) × 3.17 (D) × 1.75 (H) in.
Weight		Approx. 83 g (2.9 oz.)

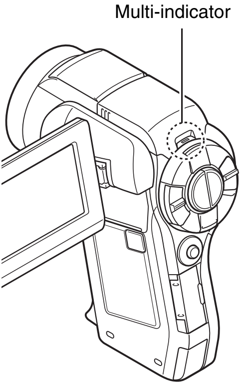
Remote control unit

Part number	BRC-C3
Power supply	Lithium battery (CR2025)
Dimensions	35 (W) × 6.5 (D) × 56.6 (H) mm 1.38 (W) × 0.26 (D) × 2.23 (H) in.
Weight	Approx. 11 g (0.4 oz.) (including battery)

Concerning the multi-indicator

The camera's multi-indicator will light, flash, or be off, depending on the different camera operations.

Color	Multi-indicator status		Camera status
Green	Lit		Connected to a computer or printer
	Flashing		Power save mode active
Orange	Lit		Connected to a TV
Red	Lit		Charging
	Flashing	Slow	Battery charge error or rise in internal temperature
		Fast	During self-timer photography
		Very fast	Accessing card



Supplied AC adaptor

Part number		VAR-G9
Power source		AC 100 V to 240 V, 50/60 Hz
Rated output		DC 5 V, 2.0 A
Ambient environment	Temperature	0 to 40 °C (32 to 104 °F) (operation), –20 to 60 °C (–4 to 140 °F) (storage)
	Humidity	20 to 80% (no condensation)
Dimensions		46.0 (W) × 77.8 (D) × 24.0 (H) mm 1.81 (W) × 3.06 (D) × 0.94 (H) in.
Weight (without power cord)		Approx. 140 g (4.9 oz.)
Power cord rated value	VPC-HD2000	AC 125 V, 7 A
	VPC-HD2000EX	AC 250 V, 2.5 A
	VPC-HD2000GX	Differs depending on the country

- When using the supplied AC adaptor abroad, the power cord may need to be replaced in accordance with local requirements. Please contact your local dealer for details.

Supplied Li-ion battery pack

Model number		DB-L50
Voltage		3.7 V
Capacity		1,900 mAh (Typ.)
Ambient environment	Temperature	0 to 40 °C (32 to 104 °F) (during use) –10 to 30 °C (14 to 86 °F) (storage)
	Humidity	10 to 90% (no condensation)
Dimensions		53.1 (W) × 35.3 (D) × 11.4 (H) mm 2.09 (W) × 1.39 (D) × 0.45 (H) in.
Weight		Approx. 41 g (1.4 oz.)

Others

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- All images and illustrations given in this manual are for explanation purposes and may differ slightly from that of the actual product. Also, actual specifications are subject to change without prior notice and therefore may differ from the contents of this manual.

Before capturing those important shots, be sure to first take a test shot to comfirm that your camera is set up and ready to go

- Sanyo Electric shall not be held responsible for any problems resulting from the use of this camera.
- Sanyo Electric declines all responsibility for damages due to improper use of the camera, failure to adhere to the instructions given in this manual, or repairs or changes done by those other than a technician authorized by the manufacturer.
- Sanyo Electric shall not be held responsible for any damage caused by optional devices or consumable items used with the camera other than those supplied with the camera or those specified by Sanyo Electric.
- As a precaution against losing data in case of a problem with your hard disk that prevents you from accessing your saved files, it's a good practice to regularly make backup copies, on a DVD for example, of the files in the hard disk you are using for the Xacti Library. Sanyo Electric shall not be held responsible for loss of files/data due to failure of your hard disk.
- Sanyo Electric shall not be held responsible for any losses or loss of revenue resulting from the loss of data caused by the malfunction, or the repairing of a malfunction, of the camera.
- The images captured with this camera will differ in quality from pictures taken with a standard film camera.

HINTS FOR TAKING PICTURES

Taking great pictures in difficult surroundings is easier than you might think. By keeping a few points in mind and choosing the correct settings, you can create photos that you'll be proud to display and share.

If images are blurred even when the autofocus is used

Your camera employs an autofocus function. When you snap a picture using the autofocus, the camera automatically adjusts the settings so that the image will be in focus. If you are getting blurred images even when using the autofocus, one or more of the following might be the reason.

■ How the autofocus works

The autofocus is activated when the [📷] button is gently pressed halfway. Press the [📷] button slightly, and the target mark will appear on the monitor to indicate that the autofocus has been activated. Next, continue to gently press the [📷] button all the way to snap the picture. This two-step method is the way to ensure that your photos are perfectly focused.

■ Reasons for unfocused images

① The [📷] button was pressed all the way in one step.

② After the image was focused, the subject moved.
- Even if camera focuses the subject once, if the distance between the camera and the subject is changed, the subject may become out of focus.

③ The focus setting is not set for the correct distance.
- If you shoot a close-up subject with the camera set to the normal focus mode, or if you shoot a subject at normal distance with the camera set to the super macro (close-up) mode (pages 62, 72 and 104), the image will not be in focus.

■ Preventing blurred images

① Confirm that the camera is set to the correct focus mode for your subject.

② Hold the camera correctly, and press the [📷] button halfway.

③ Wait for the target mark to appear in the monitor, and holding the camera steady, gently continue to press the [📷] button all the way down.

Following these steps for a gentle but firm pressing of the [📷] button will ensure that you get beautifully focused photos.

Photographing a moving subject

Situation: You would like to snap an action shot of a moving child or pet. The autofocus is activated, but because the subject is moving, the image may be blurred. In particular, when the distance between the camera and the subject is changing, it is difficult to lock the focus on the subject. Here are some hints for successfully capturing images of moving subjects.

■ Reasons for unfocused images

When the [ ] button is gently pressed halfway, the camera's autofocus works by determining the distance between the camera and the subject. Once the subject is in focus, if it then moves before the picture is snapped, the image may be out of focus. This often happens when you once lock the focus on a subject and then wait for the right moment to snap the picture. And, conversely, a blurred image may result if you press the [ ] button all the way in one step in an attempt to quickly capture an action scene, thus failing to activate the autofocus in time.

■ Preventing blurred images (How to use the manual focus [page 104])

In addition to the autofocus, a manual focus mode is also incorporated in your camera. In the autofocus mode, the distance between the camera and the subject is automatically determined when you press the [ ] button halfway. In contrast to this, with the manual focus mode, you manually set the focus by specifying the correct distance between the camera and the subject before taking the picture.

■ How to photograph a moving subject

① Set the camera's focus mode to the manual focus. Set the focus distance to the correct distance between the camera and the subject.
② When the subject is at the set focus distance, gently press the [ ] button all the way down.

<Advantage of using the manual focus>

- Images can be quickly captured without waiting for the autofocus to activate.
- Because you are presetting the focus distance, the focus can be more accurate.

<Using the manual focus effectively>

- When photographing a moving subject, press the [ ] button just before the subject reaches the focus distance, and the shutter will be released when the subject is at the correct distance.
- Use manual focus to avoid incorrectly focused images when there is an object between the camera and the subject you wish to focus on.

Shooting portraits (portrait mode [portrait icon])

Points:
- Choose a background that doesn't detract from your subject.
- Move in close to your subject.
- Pay attention to lighting and how it affects your subject.

NOTE
- If the background is distracting, it will not show your subject to his best advantage. Move in closer to your subject or zoom in so that the background does not compete with the subject.
- In portrait photography your subject is clearly the central figure, so try techniques that allow the subject to stand out.
- If light is coming from behind your subject (backlit), his face will appear dark. You can get a better picture by using the flash, for example, or changing the exposure compensation setting.

Photographing moving subjects (sports mode [sports icon])

Points:
- Match the camera's movement with that of the subject.
- Set the zoom to the Wide end (wide-angle).
- Don't be too hesitant to press the [[camera icon]] button, or you'll miss the action.

NOTE
- Tips to not missing those great action shots: Make sure you're holding the camera correctly. Keep the subject in the lens at all times, moving the camera with him while waiting for the right shot. Move your whole body–not just your arms–with the camera while shooting.
- Blurred images are more likely when the zoom is set to the Tele end than the Wide end. Set the zoom as close as possible to the Wide end.
- Learn to press the [[camera icon]] button quickly yet smoothly the instant your photo chance occurs.

Night photography (night view portrait mode)

Points:

- Avoid camera shake.
- Increase the ISO sensitivity.

NOTE

- Camera shutter speed during night photography is considerable slower, so there is a much greater chance that your photographed images will be blurry. Stabilize the camera when shooting.
- You can photograph your subject with the night scene in the background by using the flash. Be careful not to shoot too close to the subject, however, or your subject's face will appear too bright.
- After the flash operates, keep the camera and the subjects motionless for about 2 seconds.

Photographing scenery (landscape mode)

Points:

- Shoot using a high resolution.
- For zoom photography, use the optical zoom.
- Pay attention to picture composition.

NOTE

- When shooting with a wide-angle setting, or if you intend to enlarge the photo, the higher the resolution, the better.
- To zoom in on distant scenery, it's better to use the optical zoom. Using the digital zoom produces a coarser image. Hold the camera securely, keeping your elbows close to your body and making sure the camera is stable. Taking care to stabilize the camera will increase the likelihood of getting a clear photo.
- Don't forget to pay attention to picture composition; note perspective and be aware of how the placement of objects affects the scene.

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